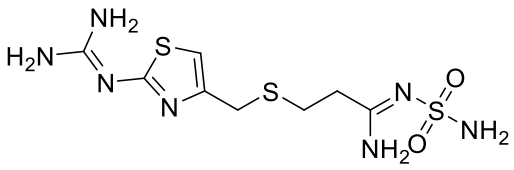
Product data sheet

MedKoo Cat#: 317862 Name: Famotidine CAS#: 76824-35-6 Chemical Formula: $C_8H_{15}N_7O_2S_3$ Exact Mass: 337.0449 Molecular Weight: 337.45	
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:
Famotidine is a histamine H2-receptor antagonist that inhibits stomach acid production. It is commonly used in the treatment of peptic ulcer disease and gastroesophageal reflux disease. Unlike cimetidine, the first H2 antagonist, Famotidine has no effect on the cytochrome P450 enzyme system and does not appear to interact with other drugs.

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
DMSO	58.0	171.88

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.96 mL	14.82 mL	29.63 mL
5 mM	0.59 mL	2.96 mL	5.93 mL
10 mM	0.30 mL	1.48 mL	2.96 mL
50 mM	0.06 mL	0.30 mL	0.59 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. Yamamoto K, Hojo H, Koshima I, Chung UI, Ohba S. Famotidine suppresses osteogenic differentiation of tendon cells in vitro and pathological calcification of tendon in vivo. J Orthop Res. 2012 Dec;30(12):1958-62. doi: 10.1002/jor.22146. Epub 2012 May 16. PMID: 22592911.
2. Özer M, Duman M, Taş Ş, Demırcı Y, Aydin MF, Reyhan E, Atici AE, Bostanci EB, Akoğlu M, Genç E. In vitro effects of famotidine and ranitidine on lower esophageal sphincter tone in rats. Turk J Gastroenterol. 2012;23(5):438-43. doi: 10.4318/tjg.2012.0448. PMID: 23161288.

In vivo study

1. Saheera S, Potnuri AG, Nair R. Histamine-2 receptor antagonist famotidine modulates cardiac stem cell characteristics in hypertensive heart disease. PeerJ. 2017 Oct 9;5:e3882. doi: 10.7717/peerj.3882. PMID: 29038754; PMCID: PMC5637875.
2. Maeda Y, Yamamoto K, Yamakawa A, Aini H, Takato T, Chung UI, Ohba S. The H2 blocker famotidine suppresses progression of ossification of the posterior longitudinal ligament in a mouse model. RMD Open. 2015 May 14;1(1):e000068. doi: 10.1136/rmdopen-2015-000068. PMID: 26509067; PMCID: PMC4612692.

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7. Bioactivity

Biological target:

Famotidine (MK-208) is a competitive histamine H2-receptor antagonist that inhibits of gastric secretion.

In vitro activity

It was first attempted to examine the effect of H2 blockers on the expression of key markers for ossification, Col10a1 and osteocalcin, in a tendon cell line, TT-D6. Col10a1 is a marker of hypertrophic chondrocytes,15 which not only calcify themselves but also induce the differentiation of osteoblast precursors; osteocalcin is a marker of osteoblasts. As shown in Figure 1A and B, the mRNA expressions of Col10a1 and osteocalcin in TT-D6 were significantly reduced by famotidine treatment in a dose-dependent manner; 100 nM of famotidine decreased the expressions of Col10a1 and osteocalcin by around 40% and 70%, respectively, as compared to control. These data suggest that famotidine inhibits osteogenic differentiation of tendon cells in vitro.

Reference: J Orthop Res. 2012 Dec;30(12):1958-62. https://pubmed.ncbi.nlm.nih.gov/22592911/

In vivo activity

The objective of this study was to evaluate the therapeutic potential of the H2 blocker famotidine for ectopic ossification in the cervical spine in an OPLL mouse model. The H2 blocker famotidine was orally administered to Enpp1ttw/ttw mice, a model of OPLL, at either 4 or 15 weeks of age at a dose of 0.667 μg/g/day. The ectopic ossification was smaller in the famotidine group than in controls (figure 1A). Quantitative analyses revealed that volume and mineral content of calcified ligaments were both significantly smaller in the famotidine group than in controls. Next, survival rates in Enpp1ttw/ttw mice with or without famotidine were assessed. mice exposed to famotidine from 4 weeks of age lived longer than those exposed to famotidine from 15 weeks of age or controls. There was no marked difference in survival rates between the latter two groups. Female mice died earlier than male mice. These data suggest that famotidine administration from an early phase of the disease progression can reduce mortality caused by ectopic ossification in the cervical spine.

Reference: RMD Open. 2015; 1(1): e000068. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4612692/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.