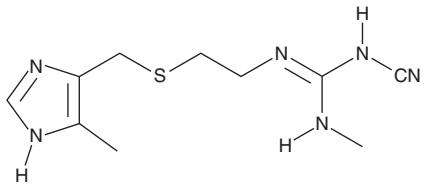
PRODUCT INFORMATION

Cimetidine

Item No. 18743

CAS Registry No.: 51481-61-9
Formal Name: N-cyano-N''-methyl-N'-[2-[[(4-methyl-1H-imidazol-5-yl)methyl]thio]ethyl]-guanidine
Synonyms: NSC 335308, SKF 92334
MF: $C_{10}H_{16}N_6S$
FW: 252.3
Purity: ≥98%
UV/Vis.: λ_{max}: 221 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Cimetidine is supplied as a crystalline solid. A stock solution may be made by dissolving the cimetidine in the solvent of choice, which should be purged with an inert gas. Cimetidine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of cimetidine in ethanol is approximately 1 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Cimetidine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, cimetidine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Cimetidine has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Cimetidine is a histamine H_2 receptor antagonist (K_i = 0.6 µM).[1] It also acts as an inverse agonist, inhibiting basal cAMP production in CHO cells expressing recombinant H_2 receptors (IC_{50} = 1.2 µM). Cimetidine inhibits histamine-induced acid secretion from isolated bullfrog gastric mucosa (IC_{50} = 16 µM).[2] *In vivo*, it inhibits histamine-induced gastric acid secretion in gastric fistulae and Heidenhain pouches in dogs (ED_{50} = 1.88 µmol/kg, p.o.). Cimetidine (20 mg/kg per day) also reduces tumor growth and neovascularization in a CMT93 colon cancer mouse syngeneic model.[3]

References

1. Smit, M.J., Leurs, R., Alewijnse, A.E., *et al.* Inverse agonism of histamine H_2 antagonist accounts for upregulation of spontaneously active histamine H_2 receptors. *Proc. Natl. Acad. Sci. U.S.A.* **93(13)**, 6802-6807 (1996).
2. Lin, T.M., Evans, D.C., Warrick, M.W., *et al.* Actions of nizatidine, a selective histamine H_2-receptor antagonist, on gastric acid secretion in dogs, rats and frogs. *J. Pharmacol. Exp. Ther.* **239(2)**, 406-410 (1986).
3. Natori, T., Sata, M., Nagai, R., *et al.* Cimetidine inhibits angiogenesis and suppresses tumor growth. *Biomed. Pharmacother.* **59(1-2)**, 56-60 (2005).

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