Cefodizime sodium

Cat. No.: HY-108402A

CAS No.: 86329-79-5

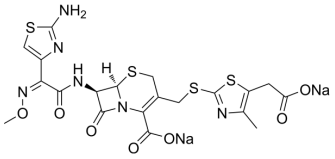
Molecular Formula: $C_{20}H_{18}N_6Na_2O_7S_4$

Molecular Weight: 628.63

Target: Bacterial; Antibiotic; Penicillin-binding protein (PBP)

Pathway: Anti-infection

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (159.08 mM; Need ultrasonic)
DMSO : 62.5 mg/mL (99.42 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.5908 mL	7.9538 mL	15.9076 mL
	5 mM	0.3182 mL	1.5908 mL	3.1815 mL
	10 mM	0.1591 mL	0.7954 mL	1.5908 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (159.08 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (3.31 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (3.31 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cefodizime sodium is a third generation cephalosporin antibiotic with a broad spectrum of antibacterial activity. Cefodizime sodium has no renal toxic effect, good tolerance and immune regulation activity, and can be used for the research of severe infections of the respiratory and urinary tracts[1][2].

IC_{50} & Target

β-lactam

In Vitro

Enterobacteriaceae including Escherichia coli, Klebsiella pneumoniae, Morganella morgan ii, Proteus mirabilis, Proteus vulgaris, Shigella sonnei, Yersinia enterocolitica and Salmonella species are all consistently sensitive to Cefodizime in vitro.

	Cefodizime has marginal but variable inhibitory activity against Citrobacter species including Citrobacter freundii, and Serratia marcescens. Cefodizime inhibits other Gram-negative bacteria including Haemophilus irifluenzae, Moraxella catarrhalis, Neisseria gonorrhoeae and Neisseria meningitidis[1]. Cefodizime is a bactericidal antibiotic having high affinity for penicillin-binding proteins lA/B, 2 and 3 of E. coli. The in vitro concentrations of Cefodizime resulting in bactericidal activity against susceptible strains of Gram-positive and Gram-negative bacteria are generally similar to the minimum inhibitory concentrations[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	In experimentally-induced K. pneumoniae respiratory tract infections in mice, Cefodizime has activity comparable to Cefotaxime and Ceftazidime, and greater than that of Cefoperazone, Latamoxef, Cefuroxime or cefazolin for 8 hours after a single subcutaneous dose of 50 mg/kg. However, unlike these cephalosporins, Cefodizime continues to demonstrate pronounced bactericidal activity for at least 48 hours after a single injection. Complete bacterial clearance from the lung is achieved within 48 hours in 50% of the mice although Cefodizime is no longer detectable in the serum[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Barradell LB, et al. Cefodizime. A review of its antibacterial activity, pharmacokinetic properties and therapeutic use. Drugs. 1992 Nov;44(5):800-34.

[2]. Hu T, et al. Probing the interaction of cefodizime with human serum albumin using multi-spectroscopic and molecular docking techniques. J Pharm Biomed Anal. 2015 Mar 25;107:325-32.

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