Ceftizoxime

Cat. No.: HY-B1596

CAS No.: 68401-81-0

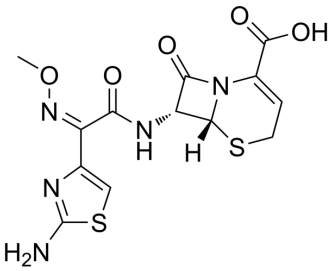
Molecular Formula: $C_{13}H_{13}N_5O_5S_2$

Molecular Weight: 383.4

Target: Bacterial; Antibiotic

Pathway: Anti-infection

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (65.21 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.6082 mL	13.0412 mL	26.0824 mL
	5 mM	0.5216 mL	2.6082 mL	5.2165 mL
	10 mM	0.2608 mL	1.3041 mL	2.6082 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (6.52 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.52 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.52 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ceftizoxime is a bacterial inhibitor which acts by interfering with bacterial cell wall synthesis and inhibiting cross-linking of the peptidoglycan.

IC_{50} & Target

β-lactam

In Vitro

Ceftizoxime is a new parenteral cephalosporin derivative which is more active against various gram-negative bacilli, including the opportunistic pathogens such as Enterobacter, Citrobacter species, and Serratia marcescens, than cephalosporins and cephamycins such as cefotiam, cefamandole, cefuroxime, cefotaxime, and cefmetazole. Ceftizoxime

	shows a broad spectrum of antibacterial activity against aerobic gram-positive and gram-negative bacteria[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	The therapeutic effect of Ceftizoxime in mice infected with a small inoculum size is almost the same as that of cefotaxime[1]. Ceftizoxime is stable in biological fluids such as serum, urine, and tissue homogenates, but cefotaxime is unstable in rat tissue homogenates. Binding of ceftizoxime to serum protein in all species is the lowest of all the antibiotics: 31% for humans, 17% for dogs, and 32% for rats[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [2]	Rats[2] The animals used in this study include 6-week-old male JCL:ICR strain mice, 6-week-old male JCL:SD strain rats, 7.5- to 15.0-kg male beagle dogs, and 5.8- to 9.1-kg male rhesus monkeys. Ceftizoxime for injection is dissolved in 0.9% saline. Ceftizoxime is given in a dose of 20 mg/kg to all test animals. The volumes are: 0.25 mL per animal by the intravenous (i.v.) and subcutaneous routes to mice; 5 mL/kg of body weight by the intramuscular (i.m.) and i.v. routes to rats; and 0.5 mL/kg of body weight by the i.m. and i.v. routes to dogs and monkeys[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Commun. 2023 Mar 22;14(1):1594.

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REFERENCES

[1]. Kamimura T, et al. Ceftizoxime (Ceftizoxime), a new parenteral cephalosporin: in vitro and in vivo antibacterial activities. Antimicrob Agents Chemother. 1979 Nov;16(5):540-8.

[2]. Murakawa T, et al. Pharmacokinetics of ceftizoxime in animals after parenteral dosing. Antimicrob Agents Chemother. 1980 Feb;17(2):157-64.

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