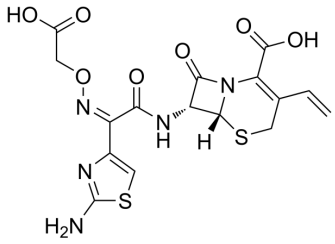
Cefixime

Cat. No.:	HY-B1381
CAS No.:	79350-37-1
Molecular Formula:	$C_{16}H_{15}N_5O_7S_2$
Molecular Weight:	453.45
Target:	Bacterial; Antibiotic
Pathway:	Anti-infection
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (220.53 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2053 mL	11.0266 mL	22.0531 mL
	5 mM	0.4411 mL	2.2053 mL	4.4106 mL
	10 mM	0.2205 mL	1.1027 mL	2.2053 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 (5.51 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.51 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.51 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cefixime (FR-17027) is an orally active antibiotic and a third generation cephalosporin antibiotic, useful for the treatment of a number of bacterial infections[1][2].

IC_{50} & Target

β-lactam

In Vitro

Cefixime shows great antibacterial activity against clinical isolates of Salmonella typhi, with a MIC90 value of 0.25 μg/mL, and is also active against β-lactamase producing Amoxicillin (HY-B0467A)-resistant strains[3].

	Cefixime is also active against Enterobacteriaceae, such as Haemophilus influenzae, and Neisseria gonorrhoeae[6]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Cefixime (0.75-60 mg/kg, oral gavage) reduces the bacterial burden in mice challenged with FA1090 (ESC-susceptible strain)[4]. cefixime (50 or 150 mg/kg, oral gavage) changes the structure and abundance of the gut microbiota of C57BL/6J mice, specifically, a reduction in the diversities of the microbial community and decreasing to one preponderant Firmicutes phylum[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Microbiol Spectr. 2023 Apr 24;e0069223.
- Biomed Res Int. 2018 Jul 2;2018:3579832.

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REFERENCES

[1]. Matsumoto Y, et al. Antibacterial activity of cefixime against Salmonella typhi and applicability of Etest. J Infect Chemother. 1999 Sep;5(3):176-179.

[2]. Connolly KL, et al. Pharmacokinetic Data Are Predictive of In Vivo Efficacy for Cefixime and Ceftriaxone against Susceptible and Resistant Neisseria gonorrhoeae Strains in the Gonorrhea Mouse Model. Antimicrob Agents Chemother. 2019 Feb 26;63(3):e01644-18.

[3]. Shi Y, et al. Restoration of cefixime-induced gut microbiota changes by Lactobacillus cocktails and fructooligosaccharides in a mouse model. Microbiol Res. 2017 Jul;200:14-24.

[4]. Stone JW, et al. Cefixime, in-vitro activity, pharmacokinetics and tissue penetration. J Antimicrob Chemother. 1989 Feb;23(2):221-8.

[5]. Neu HC, et al. In vitro activity of a new broad spectrum, beta-lactamase-stable oral cephalosporin, cefixime. Pediatr Infect Dis J. 1987 Oct;6(10):958-62.

[6]. Unemo M, et al. High-level cefixime- and ceftriaxone-resistant Neisseria gonorrhoeae in France: novel penA mosaic allele in a successful international clone causes treatment failure. Antimicrob Agents Chemother. 2012 Mar;56(3):1273-80.

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