Cefathiamidine

Cat. No.: HY-107329

CAS No.: 33075-00-2

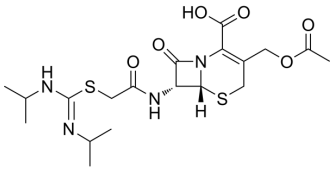
Molecular Formula: $C_{19}H_{28}N_4O_6S_2$

Molecular Weight: 472.58

Target: Bacterial; Antibiotic

Pathway: Anti-infection

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (264.51 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1160 mL	10.5802 mL	21.1604 mL
	5 mM	0.4232 mL	2.1160 mL	4.2321 mL
	10 mM	0.2116 mL	1.0580 mL	2.1160 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: ≥ 2.08 mg/mL (4.40 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.40 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.40 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cefathiamidine is a first-generation cephalosporin antibacterial agent and is used to treat infections caused by susceptible bacteria. Cefathiamidine exhibits a wide spectrum of antimicrobial activity against bacteria. Cefathiamidine is used for the treatment of respiratory, liver, five senses, urinary tract infections, endocarditis and sepsis[1][2].

IC_{50} & Target

β-lactam

In Vitro

The in-vitro activity of Cefathiamidine against Streptococcus faecalis and Streptococcus faecium are studied in comparison with other β-lactams. All the 56 strains of Str. faecalis tested are inhibited by 2 mg/L of Cefathiamidine. The MBCs of Cefathiamidine and Ampicillin for ten strains of Str. faecalis show that the ratios of MBC/MIC are greater than 64. The rates of

	killing of Str. faecalis are reduced at concentrations of Cefathiamidine and Ampicillin greater than the MIC. The most rapid killing is obtained at 2 mg/L Cefathiamidine or 4 mg/L of Ampicillin. With the addition of 1 mg/L gentamicin this paradoxical bacteriocidal effect is eliminated. Time killing studies show99.9% of the cells are killed within 6 hours by a combination of aminoglycoside and β-lactam[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Cefathiamidine is not absorbed orally and is, thus, administered through the parenteral route (intravenously or intramuscularly). Cefathiamidine is widely distributed in most bodily fluids and tissues; however, Cefathiamidine cannot pass through the blood-brain barrier. The protein-binding capacity of Cefathiamidine is 23%, and more than 90% of Cefathiamidine is excreted unchanged by the kidney[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Zhi LJ, et al. Population pharmacokinetics and dosing optimization of cefathiamidine in children with hematologic infection. Drug Des Devel Ther. 2018 Apr 17;12:855-862.

[2]. Chen HY, et al. The killing effects of cefathiamidine or ampicillin alone and in combination with gentamicin against enterococci. J Antimicrob Chemother. 1983 Jul;12(1):19-26.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA