Cefotaxime

Cat. No.: HY-A0088A

CAS No.: 63527-52-6

Molecular Formula: $C_{16}H_{17}N_5O_7S_2$

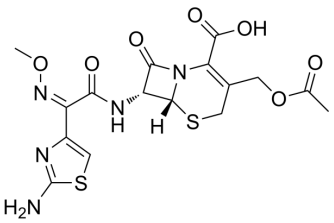
Molecular Weight: 455.47

Target: Antibiotic; Bacterial; Beta-lactamase

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

DMSO : 250 mg/mL (548.88 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1955 mL	10.9777 mL	21.9553 mL
	5 mM	0.4391 mL	2.1955 mL	4.3911 mL
	10 mM	0.2196 mL	1.0978 mL	2.1955 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 (4.57 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.57 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.57 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cefotaxime, a β-lactamase stable cephalosporin and a third-generation cephalosporin antibiotic, possesses broad-spectrum antibiotic activity against numerous Gram-positive and Gram-negative bacteria[1][2][3][4][2].

IC_{50} & Target		
	β-lactam	β-lactam

In Vitro

Cefotaxime exhibits an MIC of 0.0625 mg/L for V. vulnificus CMCP6[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

The combination of ciprofloxacin and cefotaxime is more effective in clearing V. vulnificus in vivo than previously used

regimens[4].

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Animal Model:	Female, specific pathogen free, 8-week-old BALB/c mice[4].
Dosage:	30 mg/kg.
Administration:	IP every 6 h.
Result:	The viable bacterial counts in liver were lower in mice treated with cefotaxime-plus-ciprofloxacin than in those treated with cefotaxime alone (P<0.001 at 24 h and 48 h, each).

REFERENCES

[1]. Hee-Chang Jang, et al. In vivo efficacy of the combination of ciprofloxacin and cefotaxime against Vibrio vulnificus sepsis. PLoS One. 2014 Jun 30;9(6):e101118.

[2]. Woodfield JC, et al. A comparison of the prophylactic efficacy of ceftriaxone and cefotaxime in abdominal surgery. Am J Surg. 2003 Jan;185(1):45-9.

[3]. Scholz H, et al. Prospective comparison of ceftriaxone and cefotaxime for the short-term treatment of bacterial meningitis in children. Chemotherapy. 1998 Mar-Apr;44(2):142-7.

[4]. Gums JG, et al. Differences between ceftriaxone and cefotaxime: microbiological inconsistencies. Ann Pharmacother. 2008 Jan;42(1):71-9.

[5]. E L Francke, et al. Use of cefotaxime, a beta-lactamase stable cephalosporin, in the therapy of serious infections, including those due to multiresistant organisms. Am J Med. 1981 Sep;71(3):435-42.

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