Cefuroxime sodium

Cat. No.: HY-B1256

CAS No.: 56238-63-2

Molecular Formula: $C_{16}H_{15}N_4NaO_8S$

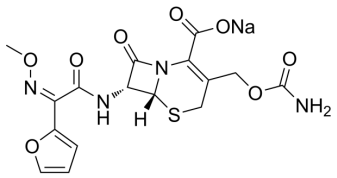
Molecular Weight: 446.37

Target: Bacterial; Antibiotic; 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 : ≥ 100 mg/mL (224.03 mM)

H_2O : 50 mg/mL (112.01 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.2403 mL	11.2015 mL	22.4029 mL
5 mM	0.4481 mL	2.2403 mL	4.4806 mL
10 mM	0.2240 mL	1.1201 mL	2.2403 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 55 mg/mL (123.22 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (5.60 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.60 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cefuroxime sodium is an orally active second-generation cephalosporin antibiotic with increased stability to β-lactamase. Cefuroxime sodium has a broad spectrum activity against Gram-positive and Gram-negative bacteria[1].

IC_{50} & Target

β-lactam

In Vitro

Cefuroxime sodium is highly active against S. aureus (MIC=0.25 μg/ml), regardless of whether the strains produces a penicillinase. It is against Staphylococcus aureus methicillin susceptible; S. aureus, methicillin resistant, Streptococcus

	pyogenes, S. pneumoniae, S. viridans, S. faecalis, and Clostridium spp with MIC values of 0.25 μg/ml, 5.9 μg/ml, 0.125 μg/ml, 0.125 μg/ml, 0.125 μg/ml, >125.0 μg/ml, and 1.2 μg/ml, respectively[1]. Cefuroxime sodium (10-100 μg/ml; 2-6 hours) rapidly bactericidal, its action is comparatively slow against the strains of S. aureus, but, even so, over 99% of the initial inoculum is killed by 6 h. The gram-negative organisms are killed rapidly, and in most cases over 99% of the very large inocula are killed within 2 h; the β-lactamase-producing strains are killed as quickly as non-enzyme-producing strains[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Rabbits (weighing 2.0 to 2.5 kg) are challenged intravenously with S. aureus strain 630 (a penicillinase-producing strain), the median effective dose of Cefuroxime sodium is 3 mg/kg as a result of the protection test[2]. 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.
- Nat Commun. 2022 Mar 2;13(1):1116.
- J Chem Inf Model. 2021 Mar 18.
- Biomed Res Int. 2018 Jul 2;2018:3579832.

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REFERENCES

[1]. Callaghan, et al. Cefuroxime sodium, a New Cephalosporin Antibiotic: Activity in Vitro. Antimicrob Agents Chemother. 1976 Mar;9(3):511-9.

[2]. D M Ryan, et al. Cefuroxime sodium, a New Cephalosporin Antibiotic: Activity in Vivo. Antimicrob Agents Chemother. 1976 Mar;9(3):520-5.

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