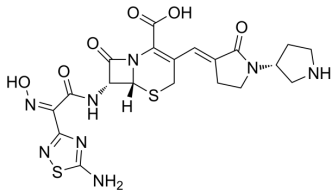
Ceftobiprole

Cat. No.:	HY-112579
CAS No.:	209467-52-7
Molecular Formula:	$C_{20}H_{22}N_8O_6S_2$
Molecular Weight:	534.57
Target:	Bacterial; Antibiotic
Pathway:	Anti-infection
Storage:	Powder -20°C 3 years 4°C 2 years * The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

DMSO : 4.95 mg/mL (9.26 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.8707 mL	9.3533 mL	18.7066 mL
	5 mM	0.3741 mL	1.8707 mL	3.7413 mL
	10 mM	---	---	---

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: ≥ 0.5 mg/mL (0.94 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.5 mg/mL (0.94 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.5 mg/mL (0.94 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ceftobiprole (Ro 63-9141) is a broad-spectrum cephalosporin with high levels of in vitro activity against methicillin- (MRSA) and vancomycin-resistant staphylococci (VRSA) and penicillin-resistant streptococci with a MIC_{90} value of 2 μg/mL for MRSA. Ceftobiprole also inhibits gram-positive and gram-negative pathogens[1][2][3].

IC_{50} & Target

β-lactam

In Vitro

Ceftobiprole (Ro 63-9141) has demonstrates activity against important gram-positive bacteria, including S. pneumonia (PRSP), Methicillin-resistant S. aureus (MRSA), and E. faecalis with MIC_{90} values of 0.25, 2, and 2 mcg/mL, respectively.

Ceftobiprole has also demonstrated potent in vitro activity against several clinical isolates of community-associated Methicillin-resistant S. aureus (CA-MRSA), S. aureus (VISA), and S. aureus (VRSA), with a minimum inhibitory concentration (MIC) of 2 mcg/mL[1].

Ceftobiprole is highly active against S. aureus, withMICs ranging from 0.12 to 4 mg/L (only one resistant strain,MIC of 4 mg/L). Furthermore, Ceftobiprole is twice more active on Methicillin-susceptible S. aureus (MSSA) strains with MIC_{50} and MIC_{90} of 0.5 mg/L than on MRSA strains with MIC_{50} and MIC_{90} of 1 mg/L. Moreover, Panton-Valentine leukocidin (PVL)+MRSA are slightly more susceptible to Ceftobiprole (MIC_{50} of 0.5 mg/L and MIC_{90} of 1 mg/L) than PVL-MRSA (MIC_{50} and MIC_{90} of 1 mg/L)[2].

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

CUSTOMER VALIDATION

- Nat Microbiol. 2023 Mar;8(3):410-423.
- Antibiotics (Basel). 2022, 11(10), 1351.

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REFERENCES

[1]. E Azoulay-Dupuis, et al. Efficacy of BAL5788, a prodrug of cephalosporin BAL9141, in a mouse model of acute pneumococcal pneumonia. Antimicrob Agents Chemother. 2004 Apr;48(4):1105-11.

[2]. Kisgen J, et al. Ceftobiprole, a Broad-Spectrum Cephalosporin With Activity against Methicillin-Resistant Staphylococcus aureus (MRSA). P T. 2008 Nov;33(11):631-41.

[3]. Hodille E, et al. In vitro activity of ceftobiprole on 440 Staphylococcus aureus strains isolated from bronchopulmonary infections. Med Mal Infect. 2017 Mar;47(2):152-157.

Caution: Product has not been fully validated for medical applications. For research use only.

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