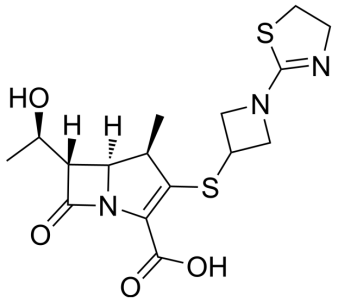
Tebipenem

Cat. No.:	HY-A0076
CAS No.:	161715-21-5
Molecular Formula:	$C_{16}H_{21}N_3O_4S_2$
Molecular Weight:	383.49
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 : 33.33 mg/mL (86.91 mM; Need ultrasonic)
H_2O : 7.14 mg/mL (18.62 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.6076 mL	13.0381 mL	26.0763 mL
5 mM	0.5215 mL	2.6076 mL	5.2153 mL
10 mM	0.2608 mL	1.3038 mL	2.6076 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 8.33 mg/mL (21.72 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (6.52 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.52 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.52 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Tebipenem is an orally available carbapenem antibiotic, shows broad-spectrum activity against Gram-positive and -negative bacteria, except for Pseudomonas aeruginosa.

IC_{50} & Target

β-lactam

In Vitro	Tebipenem exhibits slow tight-binding inhibition at low micromolar concentrations versus the chromogenic substrate nitrocefin, and apparent K_m and k_{cat} values of 0.8 μM and 0.03 min^{-1}, respectively[1]. Tebipenem shows potent activity against B. pseudomallei, with MIC_{50} and MIC_{90} values of both 2 mg/L[2]. Tebipenem shows good activity against S. pneumoniae, with the MIC range of ≤0.25 μg/mL in all of the S. pneumoniae isolates[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Antimicrob Agents Chemother. 2024 Jan 4:e0133223.
- Antimicrob Agents Chemother. 2021 May 17;AAC.00552-21.
- Antibiotics (Basel). 2022, 11(10), 1274.
- Patent. US20200289462A1.
- Biomed Res Int. 2018 Jul 2;2018:3579832.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Hazra S, et al. Tebipenem, a new carbapenem antibiotic, is a slow substrate that inhibits the β-lactamase from Mycobacterium tuberculosis. Biochemistry. 2014 Jun 10;53(22):3671-8

[2]. Seenama C, et al. In vitro activity of tebipenem against Burkholderia pseudomallei. Int J Antimicrob Agents. 2013 Oct;42(4):375.

[3]. Li H, et al. In vitro antibacterial activities of two novel oral antibiotics, tebipenem and cefditoren, and other comparators against community-acquired respiratory tract infection-associated bacterial pathogens: A multicentre study in China. Int J Antimicrob Agents. 2014 Jan;43(1):92-3.

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