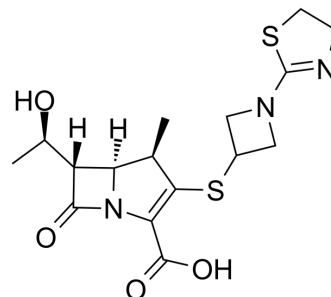


## Tebipenem

<b>Cat. No.:</b>	HY-A0076		
<b>CAS No.:</b>	161715-21-5		
<b>Molecular Formula:</b>	C <sub>16</sub> H <sub>21</sub> N <sub>3</sub> O <sub>4</sub> S <sub>2</sub>		
<b>Molecular Weight:</b>	383.49		
<b>Target:</b>	Bacterial; Antibiotic		
<b>Pathway:</b>	Anti-infection		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 33.33 mg/mL (86.91 mM; Need ultrasonic)  
 H<sub>2</sub>O : 7.14 mg/mL (18.62 mM; Need ultrasonic)

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	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

- Add each solvent one by one: PBS  
Solubility: 20 mg/mL (52.15 mM); Clear solution; Need ultrasonic
- 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
- 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
- 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*.

#### 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  $\mu\text{M}$  and 0.03  $\text{min}^{-1}$ , respectively<sup>[1]</sup>. Tebipenem shows potent activity against *B. pseudomallei*, with  $\text{MIC}_{50}$  and  $\text{MIC}_{90}$  values of both 2  $\text{mg/L}$ <sup>[2]</sup>. Tebipenem shows good activity against *S. pneumoniae*, with the MIC range of  $\leq 0.25$   $\mu\text{g/mL}$  in all of the *S. pneumoniae* isolates<sup>[3]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- Antimicrob Agents Chemother. 2021 May 17;AAC.00552-21.
- Biomed Res Int. 2018 Jul 2;2018:3579832.
- Patent. US20200289462A1.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

## REFERENCES

- [1]. Hazra S, et al. Tebipenem, a new carbapenem antibiotic, is a slow substrate that inhibits the  $\beta$ -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.

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

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