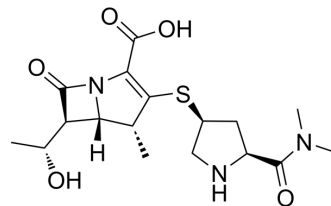


## Meropenem

<b>Cat. No.:</b>	HY-13678		
<b>CAS No.:</b>	96036-03-2		
<b>Molecular Formula:</b>	C <sub>17</sub> H <sub>25</sub> N <sub>3</sub> O <sub>5</sub> S		
<b>Molecular Weight:</b>	383		
<b>Target:</b>	Bacterial; Antibiotic; Penicillin-binding protein (PBP)		
<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

<b>In Vitro</b>	DMSO : 100 mg/mL (261.10 mM; Need ultrasonic)				
		Solvent Concentration	Mass 1 mg	5 mg	10 mg
	<b>Preparing Stock Solutions</b>	1 mM	2.6110 mL	13.0548 mL	26.1097 mL
		5 mM	0.5222 mL	2.6110 mL	5.2219 mL
10 mM		0.2611 mL	1.3055 mL	2.6110 mL	
Please refer to the solubility information to select the appropriate solvent.					
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 2.5 mg/mL (6.53 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (6.53 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.5 mg/mL (6.53 mM); Clear solution</li> </ol>				

### BIOLOGICAL ACTIVITY

<b>Description</b>	Meropenem (SM 7338) is a carbapenem antibiotic with broad-spectrum antibacterial activity. Meropenem has activity against susceptible and resistant <i>N. gonorrhoeae</i> (MIC value of 0.02-0.06 mg/mL), <i>H. influenzae</i> (MIC value of 0.03-0.12 mg/mL), and <i>H. ducreyi</i> (MIC value of 0.015-0.12 mg/mL) <sup>[1][2]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	β-lactam
<b>In Vitro</b>	Meropenem is intrinsically stable to dehydropeptidase-1 (DHP-1) degradation and Meropenem acts by inhibiting bacterial

cell wall synthesis by binding to and inactivating penicillin-binding proteins (PBPs). Meropenem possesses broad-spectrum in vitro activity, which includes activity against many Gram-positive, Gram-negative and anaerobic bacteria; Meropenem lacks activity against *Enterococcus faecium*, methicillin-resistant *Staphylococcus aureus* and *Stenotrophomonas maltophilia*<sup>[2]</sup>.

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

#### In Vivo

Meropenem (60 mg/kg; intraperitoneal injection; once; SD rats) treatment significantly reduces the incidence of pancreatic infection<sup>[3]</sup>.

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Animal Model:	Male Sprague-Dawley rats (250-350 g) induced acute necrotizing pancreatitis <sup>[3]</sup>
Dosage:	60 mg/kg
Administration:	Intraperitoneal injection; once
Result:	Significantly reduced the incidence of pancreatic infection.

## CUSTOMER VALIDATION

- Nat Microbiol. 2023 Mar;8(3):410-423.
- Nat Commun. 2022 Mar 2;13(1):1116.
- Proc Natl Acad Sci U S A. 2024 Jan 16;121(3):e2314514121.
- Int J Antimicrob Agents. 2018 Aug;52(2):269-271.
- Biomed Pharmacother. 2023 Nov 8:115856.

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## REFERENCES

[1]. L Slaney, et al. In-vitro activity of meropenem against *Neisseria gonorrhoeae*, *Haemophilus influenzae* and *H. ducreyi* from Canada and Kenya. J Antimicrob Chemother. 1989 Sep;24 Suppl A:183-6.

[2]. George G Zhanel, et al. Comparative review of the carbapenems. Drugs. 2007;67(7):1027-52.

[3]. Umit Ateskan, et al. Deferoxamine and meropenem combination therapy in experimental acute pancreatitis. Pancreas. 2003 Oct;27(3):247-52.

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

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