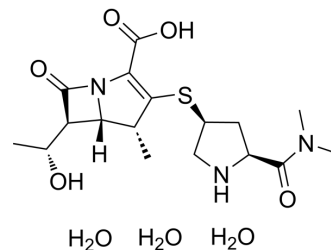


Meropenem trihydrate

Cat. No.:	HY-13678A		
CAS No.:	119478-56-7		
Molecular Formula:	C ₁₇ H ₃₁ N ₃ O ₈ S		
Molecular Weight:	437.51		
Target:	Bacterial; Antibiotic; Penicillin-binding protein (PBP)		
Pathway:	Anti-infection		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (228.57 mM; Need ultrasonic)
 H₂O : 12.5 mg/mL (28.57 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.2857 mL	11.4283 mL	22.8566 mL
	5 mM	0.4571 mL	2.2857 mL	4.5713 mL
	10 mM	0.2286 mL	1.1428 mL	2.2857 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 100 mg/mL (228.57 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 (5.71 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (5.71 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (5.71 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Meropenem trihydrate (SM 7338 trihydrate) is a carbapenem antibiotic with broad-spectrum antibacterial activity. Meropenem trihydrate has activity against susceptible and resistant *N. gonorrhoeae* (MIC value of 0.02-0.06 mg/mL), *H. influenzae* (MIC value of 0.03-0.12 mg/mL), and *H. ducreyi* (MIC value of 0.015-0.12 mg/mL)^{[1][2]}.

IC₅₀ & Target	β-lactam									
In Vitro	<p>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 <i>Enterococcus faecium</i>, methicillin-resistant <i>Staphylococcus aureus</i> and <i>Stenotrophomonas maltophilia</i>^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>									
In Vivo	<p>Meropenem (60 mg/kg; intraperitoneal injection; once; SD rats) treatment significantly reduces the incidence of pancreatic infection^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>Male Sprague-Dawley rats (250-350 g) induced acute necrotizing pancreatitis^[3]</td> </tr> <tr> <td>Dosage:</td> <td>60 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Intraperitoneal injection; once</td> </tr> <tr> <td>Result:</td> <td>Significantly reduced the incidence of pancreatic infection.</td> </tr> </table>		Animal Model:	Male Sprague-Dawley rats (250-350 g) induced acute necrotizing pancreatitis ^[3]	Dosage:	60 mg/kg	Administration:	Intraperitoneal injection; once	Result:	Significantly reduced the incidence of pancreatic infection.
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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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