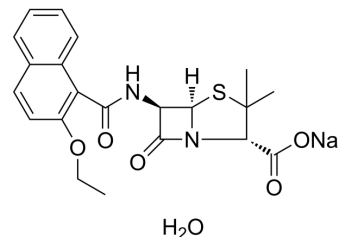


Nafcillin sodium monohydrate

Cat. No.:	HY-B0555A
CAS No.:	7177-50-6
Molecular Formula:	C ₂₁ H ₂₃ N ₂ NaO ₆ S
Molecular Weight:	454.47
Target:	Bacterial; Antibiotic; Beta-lactamase
Pathway:	Anti-infection
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	DMSO : 100 mg/mL (220.04 mM; Need ultrasonic)					
	H ₂ O : 83.33 mg/mL (183.36 mM; Need ultrasonic)					
	Preparing Stock Solutions	Solvent	Mass	1 mg	5 mg	10 mg
		Concentration				
		1 mM		2.2004 mL	11.0018 mL	22.0037 mL
5 mM			0.4401 mL	2.2004 mL	4.4007 mL	
	10 mM		0.2200 mL	1.1002 mL	2.2004 mL	
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: PBS Solubility: 100 mg/mL (220.04 mM); Clear solution; Need ultrasonic					
	2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (5.50 mM); Clear solution					
	3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (5.50 mM); Clear solution					
	4. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (5.50 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	Nafcillin sodium monohydrate, an antibiotic, is a reversible inhibitor of β-lactamase. Nafcillin sodium monohydrate can be used for the research of staphylococcal infections ^{[1][2]} .
IC₅₀ & Target	β-lactam
In Vivo	Nafcillin sodium monohydrate (100 mg/kg; s.c.) exhibits bactericidal activity against methicillin-susceptible Staphylococcus

aureus (MSSA) and methicillin-resistant S. aureus (MRSA), with MICs of 0.5 µg/mL and 64.0 µg/mL for S. aureus strains Xen-29 and Xen-1, respectively, in mice^[3].

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

Animal Model:	CD-1 female mice (20-25 g), with MRSA- and MSSA-infected ^[3]
Dosage:	100 mg/kg
Administration:	Subcutaneous injection
Result:	Protected 100% of the healthy mice with MSSA infections.

CUSTOMER VALIDATION

- J Mol Liq. 29 October 2021, 117946.
- Biomed Res Int. 2018 Jul 2;2018:3579832.

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REFERENCES

- [1]. Tan, A.K., et al. Identification of the site of covalent attachment of nafcillin, a reversible suicide inhibitor of beta-lactamase. *Biochem J*, 1992. 281 (Pt 1): p. 191-6.
- [2]. Palmer, D.L., et al. Bacterial wound colonization after broad-spectrum versus narrow-spectrum antibiotics. *Ann Thorac Surg*, 1995. 59(3): p. 626-31.
- [3]. Lawrence I. Mortin, et al. Rapid Bactericidal Activity of Daptomycin against Methicillin-Resistant and Methicillin-Susceptible Staphylococcus aureus Peritonitis in Mice as Measured with Bioluminescent Bacteria. *Antimicrob Agents Chemother*. 2007 May; 51(5): 1787-1794.

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

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