Methicillin sodium salt

Cat. No.: HY-B0974

CAS No.: 132-92-3

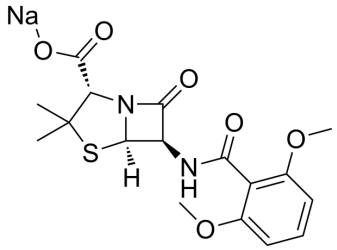
Molecular Formula: $C_{17}H_{19}N_2NaO_6S$

Molecular Weight: 402.4

Target: Bacterial; Antibiotic; Penicillin-binding protein (PBP)

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 : 125 mg/mL (310.64 mM; Need ultrasonic)
H_2O : 100 mg/mL (248.51 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4851 mL	12.4254 mL	24.8509 mL
5 mM	0.4970 mL	2.4851 mL	4.9702 mL
10 mM	0.2485 mL	1.2425 mL	2.4851 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 (248.51 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (5.17 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.17 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.17 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Methicillin sodium salt (Meticillin sodium) is a β-lactam, semi-synthetic antibiotic related to penicillin antibiotic. Methicillin sodium salt inhibits penicillin-binding proteins involved in the synthesis of peptidoglycan. Methicillin sodium salt inhibits S. aureus with a MIC value of 2.1 μg/mL. Methicillin sodium salt can be used for the research of inflammation[1][2].

IC_{50} & Target

β-lactam

In Vitro

Methicillin sodium salt (100 μg/mL; 18 h) kills S. aureus after incubation intracellular for 18 hours[1].

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

Cell Viability Assay[1]

Cell Line:	Leukocytes
Concentration:	100 μg/mL
Incubation Time:	18 hours
Result:	Effectively eliminated S. aureus with minimal bactericidal concentration of 3.13 μg/mL, and exhibited better effects under aerobical condition.

In Vivo

Methicillin sodium salt (42.5 and 85 mg/kg; i.m. four times daily; for 21 days or till spontaneous death) against the enterococcus in leukocytes[1].

Methicillin sodium salt (400 mg/kg; i.p. once) survives infected mice better than compared group[2].

Methicillin sodium salt (400 mg/kg; i.h. once) prevents infected mice from death[2].

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

Animal Model:	White New Zealand rabbits, weighing 2.0 to 3.0 kg[1]
Dosage:	42.5 and 85 mg/kg
Administration:	Intramuscular injection; 42.5 and 85 mg/kg four times daily; for 21 days or till spontaneous death
Result:	Inhibited enterococcus at 24 hours with a half-live of 1.1 h, but showed no statisticalsignificance to rabbits.

Animal Model:	Mice with 5-7 X 10^8 S. aureus[2]
Dosage:	400 mg/kg
Administration:	Intraperitoneal injection; 400 mg/kg; once
Result:	Showed a survival rate of 30.5%, higher than compared group with a survival rate of 6.9%.

Animal Model:	Mice with 5-7 X 10^8 S. aureus[2]
Dosage:	400 mg/kg
Administration:	Subcutaneous injection; 400 mg/kg; once
Result:	Suppressed large abscesses developed in mice, and also prevented mice from death.

CUSTOMER VALIDATION

- Nano Today. 2022, 47: 101683.
- Sci Rep. 2021 Apr 22;11(1):8690.
- Research Square Print. October 6th, 2022.
- Biomed Res Int. 2018 Jul 2;2018:3579832.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Lincoln LJ, et al. Penicillinase-resistant penicillins plus gentamicin in experimental enterococcal endocarditis. Antimicrob Agents Chemother. 1977 Oct;12(4):484-9.

[2]. Mandell GL, Vest TK. Killing of intraleukocytic Staphylococcus aureus by rifampin: in-vitro and in-vivo studies. J Infect Dis. 1972 May;125(5):486-90.

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