Penicillin V Potassium

Cat. No.: HY-B0975

CAS No.: 132-98-9

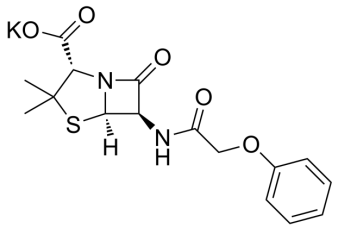
Molecular Formula: $C_{16}H_{17}KN_2O_5S$

Molecular Weight: 388.48

Target: Bacterial; Antibiotic

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 : 12 mg/mL (30.89 mM; Need ultrasonic)
H_2O : 6 mg/mL (15.44 mM; Need ultrasonic and warming)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.5741 mL	12.8707 mL	25.7414 mL
5 mM	0.5148 mL	2.5741 mL	5.1483 mL
10 mM	0.2574 mL	1.2871 mL	2.5741 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 (257.41 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1.2 mg/mL (3.09 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.2 mg/mL (3.09 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.2 mg/mL (3.09 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Penicillin V Potassium (Phenoxymethylpenicillin potassium salt) is an orally active antibiotic. Penicillin V Potassium inhibits the growth of Streptococci, C. difficile and S. aureus. Penicillin V Potassium can be used for the research of otitis, sinusitis, pharyngitis and tonsillitis[1][2][3][4].

IC_{50} & Target

β-lactam

In Vitro	Penicillin V (0.002-8.0 mg/L) inhibits the growth of Streptococci, with the minimum inhibitory concentrations (MICs) of 0.004-0.008 mg/L[2]. Penicillin V (0.002-8.0 mg/L) inhibits the growth of C. difficile, with a MIC_{90} of 8 mg/L[3]. Penicillin V (0.004-0.063 mg/L; 18 h) inhibits the growth of Staphylococcus aureus, with a MIC of 0.016 mg/L[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Penicillin V (0.063-0.25 mg/kg; a single s.c.) inhibits the outgrowth of S. aureus in mice thigh muscle[4]. Penicillin V (100 mg/kg; p.o. once daily for 5 d) avoids the fulminant infection of acute purulent otitis media (AOM) in rats[5]. Penicillin V (2 mg/kg; a single s.c.) exhibits the plasma half-life (61 min) and mean AUC (0.47 mg/L•h)[4][4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Specific pathogen free (SPF) male Swiss mice (20-25 g) are inoculated S. aureus[4]
Dosage:	0.063, 0.13, 0.25 mg/kg
Administration:	A single s.c.
Result:	Decreased the number of CFU (1.34×10^7 counts/mL) compared to controls (3.5×10^7 counts/mL) at the dose of 0.25 mg/kg.

REFERENCES

[1]. Sabath LD. Et, al. Phenoxymethylpenicillin (penicillin V) and phenethicillin. Med Clin North Am. 1970 Sep;54(5):1101-11.

[2]. Kamme C, et, al. In vitro effect on group A streptococci of loracarbef versus cefadroxil, cefaclor and penicillin V. Scand J Infect Dis. 1993;25(1):37-42.

[3]. Norén T, et, al. In vitro susceptibility to 17 antimicrobials of clinical Clostridium difficile isolates collected in 1993-2007 in Sweden. Clin Microbiol Infect. 2010 Aug;16(8):1104-10.

[4]. Overbosch D, et, al. Comparative pharmacodynamics and clinical pharmacokinetics of phenoxymethylpenicillin and pheneticillin. Br J Clin Pharmacol. 1985 May;19(5):657-68.

[5]. Hermansson A, et, al. Prevention of experimental acute otitis media with penicillin V. Acta Otolaryngol. Jan-Feb 1990;109(1-2):119-23.

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