Penicillin V

Cat. No.: HY-B0975A

CAS No.: 87-08-1

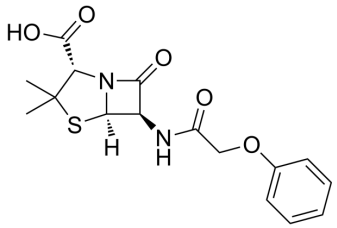
Molecular Formula: $C_{16}H_{18}N_2O_5S$

Molecular Weight: 350.39

Target: Antibiotic; Bacterial

Pathway: Anti-infection

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Penicillin V (Phenoxymethylpenicillin) is a potent and orally active antibiotic. Penicillin V shows antibacterial activity for Streptococci, Clostridium difficile and staphylococcus aureus. Penicillin V has the potential 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) shows antibacterial activity for Clostridium difficile with an MIC_{50} value of 4.0 mg/L and an MIC_{90} value of 8.0 mg/L[3]. Penicillin V (0.004-0.063 mg/L; 18 h) inhibits the growth of Staphylococcus aureus, with an MIC value 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; s.c.) inhibits the outgrowth of S. aureus in mice thigh muscle[4]. Penicillin V (2 mg/kg; s.c.) exhibits the plasma half-life (61 min) and mean AUC (0.47 mg/L·h)[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]. 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:	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.

[6]. Timm A, et al. Photolysis of four βlactam antibiotics under simulated environmental conditions: Degradation, transformation products and antibacterial activity. Sci Total Environ. 2019 Feb 15;651(Pt 1):1605-1612.

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