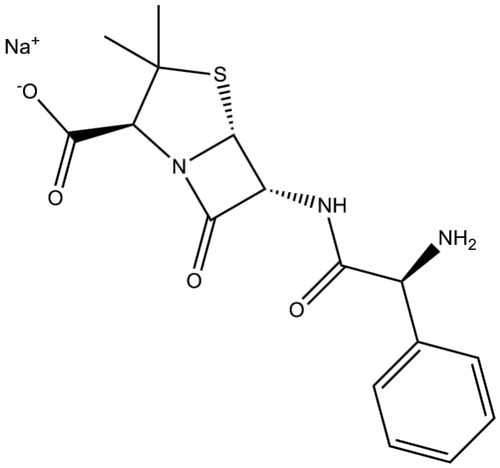
Product Data Sheet

Product Name: Ampicillin sodium
Cat. No.: GC10036

Chemical Properties

Cas. No.	69-52-3		
Chemical Name	sodium;(2S,5R,6R)-6-[[(2R)-2-amino-2-phenylacetyl]amino]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylate		
SMILES	CC1(C(N2C(S1)C(C2=O)NC(=O)C(C3=CC=CC=C3)N)C(=O)[O-])C.[Na+]		
Formula	$C_{16}H_{18}N_3NaO_4S$	M.Wt	371.4
Solubility	≥ 73.6 mg/mL in DMSO, ≥ 75.2 mg/mL in EtOH, ≥ 18.57 mg/mL in Water	Storage	Store at 2-8°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Protocol

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Animal experiment: Mice: Ampicillin is dissolved in normal saline. Male C57BL/6 mice were anesthetized with halothane and subjected to bilateral common carotid artery occlusion for 40 min. Before transient forebrain ischemia, ampicillin (200 mg/kg, intraperitoneally [i.p.]) or penicillin G (6,000 U/kg or 20,000 U/kg, i.p.) was administered daily for 5 days. In the control animals, saline was administered at the same volume and time schedule[3].

References:

[1]. Chopra SL, et al. Effect of Ampicillin on E. Coli of Swine Origin. Can J Comp Med Vet Sci. 1963 Sep;27(9):223-7.
[2]. Lund B, et al. Ampicillin in portal and peripheral blood and bile after oral administration of ampicillin andpivampicillin. Eur J Clin Pharmacol. 1974;7(2):133-5.
[3]. Lee KE, et al. The neuroprotective mechanism of ampicillin in a mouse model of transient forebrain ischemia. Korean J Physiol Pharmacol. 2016 Mar;20(2):185-92.

Background

Ampicillin sodium is a broad-spectrum beta-lactam antibiotic against a variety of gram-positive and gram-negative bacteria.

Ampicillin inhibits the growth of E. coli of swine origin in a dose-dependent manner. The effective inhibitory concentration of Ampicillin was 2.5 uG/mL[1].

Ampicillin is very effective in alleviating the symptoms of hemorrhagic enteritis in a 11-week old pig[1]. Ampicillin produces maximum concentrations in bile twice as high as in serum. The peak concentration of ampicillin after an oral dose is as twice as high in portal blood as in peripheral blood[2]. Ampicillin provides neuroprotection against ischemia-reperfusion brain injury. Ampicillin reduces the activities of MMPs and increases the expression level of GLT-1. Pretreatment with ampicillin significantly reduces medial hippocampal cell death following global forebrain ischemia[3].

References:
[1]. Chopra SL, et al. Effect of Ampicillin on E. Coli of Swine Origin. Can J Comp Med Vet Sci. 1963 Sep;27(9):223-7.

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[2]. Lund B, et al. Ampicillin in portal and peripheral blood and bile after oral administration of ampicillin andpivampicillin. Eur J Clin Pharmacol. 1974;7(2):133-5.
[3]. Lee KE, et al. The neuroprotective mechanism of ampicillin in a mouse model of transient forebrain ischemia. Korean J Physiol Pharmacol. 2016 Mar;20(2):185-92.

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