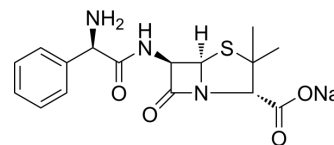


## Ampicillin sodium

Cat. No.:	HY-B0522A
CAS No.:	69-52-3
Molecular Formula:	C <sub>16</sub> H <sub>18</sub> N <sub>3</sub> NaO <sub>4</sub> S
Molecular Weight:	371
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

H<sub>2</sub>O : ≥ 200 mg/mL (539.08 mM)  
 DMSO : 200 mg/mL (539.08 mM; Need ultrasonic)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg
	1 mM		2.6954 mL	13.4771 mL	26.9542 mL
	5 mM		0.5391 mL	2.6954 mL	5.3908 mL
	10 mM		0.2695 mL	1.3477 mL	2.6954 mL

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: PBS  
Solubility: 50 mg/mL (134.77 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 5 mg/mL (13.48 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 5 mg/mL (13.48 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 5 mg/mL (13.48 mM); Clear solution
- Add each solvent one by one: 5% DMSO >> 40% PEG300 >> 5% Tween-80 >> 50% saline  
Solubility: ≥ 2.5 mg/mL (6.74 mM); Clear solution
- Add each solvent one by one: 5% DMSO >> 95% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (6.74 mM); Clear solution

### BIOLOGICAL ACTIVITY

<b>Description</b>	Ampicillin sodium (D-(-)- $\alpha$ -Aminobenzylpenicillin sodium salt) is a broad-spectrum beta-lactam antibiotic against a variety of gram-positive and gram-negative bacteria <sup>[1]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	$\beta$ -lactam
<b>In Vitro</b>	Ampicillin inhibits the growth of E. coli of swine origin in a dose-dependent manner. The effective inhibitory concentration of Ampicillin was 2.5 $\mu$ G/mL <sup>[1]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
<b>In Vivo</b>	Ampicillin is very effective in alleviating the symptoms of hemorrhagic enteritis in a 11-week old pig <sup>[1]</sup> . 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 <sup>[2]</sup> . 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 <sup>[3]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## PROTOCOL

### Animal Administration<sup>[3]</sup>

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<sup>[3]</sup>.

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

## CUSTOMER VALIDATION

- Cell Metab. 2023 Sep 29;S1550-4131(23)00340-6.
- Nat Commun. 2022 Mar 2;13(1):1116.
- Nucleic Acids Res. 2022 Dec 12;gkac1141.
- Cell Rep Med. 2023 Dec 19;4(12):101340.
- Sci Adv. 2023 Feb 17;9(7):eade4770.

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## 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 and pivampicillin. 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.

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

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