

Bacitracin

Cat. No.:	HY-107193
CAS No.:	1405-87-4
Molecular Formula:	C ₆₆ H ₁₀₃ N ₁₇ O ₁₆ S
Molecular Weight:	1422.69
Target:	Bacterial; Antibiotic; PDI
Pathway:	Anti-infection; Cell Cycle/DNA Damage; Metabolic Enzyme/Protease
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)

Bacitracin

SOLVENT & SOLUBILITY

In Vitro	H ₂ O : 100 mg/mL (70.29 mM); Need ultrasonic																							
	<table border="1"> <thead> <tr> <th rowspan="2">Preparing Stock Solutions</th> <th rowspan="2">Solvent Concentration</th> <th colspan="3">Mass</th> </tr> <tr> <th>1 mg</th> <th>5 mg</th> <th>10 mg</th> </tr> </thead> <tbody> <tr> <td></td> <td>1 mM</td> <td>0.7029 mL</td> <td>3.5145 mL</td> <td>7.0289 mL</td> </tr> <tr> <td></td> <td>5 mM</td> <td>0.1406 mL</td> <td>0.7029 mL</td> <td>1.4058 mL</td> </tr> <tr> <td></td> <td>10 mM</td> <td>0.0703 mL</td> <td>0.3514 mL</td> <td>0.7029 mL</td> </tr> </tbody> </table>	Preparing Stock Solutions	Solvent Concentration	Mass			1 mg	5 mg	10 mg		1 mM	0.7029 mL	3.5145 mL	7.0289 mL		5 mM	0.1406 mL	0.7029 mL	1.4058 mL		10 mM	0.0703 mL	0.3514 mL	0.7029 mL
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	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 (70.29 mM); Suspended solution; Need ultrasonic																							

BIOLOGICAL ACTIVITY

Description	Bacitracin is a polypeptide antibiotic against staphylococcal and pathogenic protozoa infections. Bacitracin inhibits cell wall biosynthesis and permeability through binding to the undecaprenyl pyrophosphate. Bacitracin inhibits macromolecular synthesis. Bacitracin is also a protein disulfide isomerase (PDI) inhibitor ^{[1][2][3]} .
In Vitro	Bacitracin (64 µg/mL, 24 h) together with Colistin shows antibacterial activity against <i>S. aureus</i> BA01611 ^[1] . Bacitracin (64 µg/mL, 1 or 2 h) damages the cell surface to grape-like cell clusters, and the cell boundaries are faint and unclear ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Bacitracin (0-100 mg/kg, intramuscular injection, daily for 12 consecutive days) shows anti-tumor efficacy in HCC model ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	HCC model (MH134 cells implanted) ^[3]
Dosage:	0, 10, 50, and 100 mg/kg
Administration:	Intramuscular injection (i.m), daily for 12 consecutive days.
Result:	Decreased tumor volumes. Decreased the percentage of PDI-stained vascular densities.

REFERENCES

[1]. Mohamed Faisal, et al. Bacitracin Inhibits the Oyster Pathogen *Perkinsus marinus* in Vitro and in Vivo. *Journal of Aquatic Animal Health*. Volume 11, 1999 - Issue 2.

[2]. Yu SJ, et al. Enhancement of hexokinase II inhibitor-induced apoptosis in hepatocellular carcinoma cells via augmenting ER stress and anti-angiogenesis by protein disulfide isomerase inhibition. *J Bioenerg Biomembr*. 2012 Feb;44(1):101-15.

[3]. Si W, et al. Colistin Induces *S. aureus* Susceptibility to Bacitracin. *Front Microbiol*. 2018 Nov 20;9:2805.

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

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