

## Imipenem monohydrate

## Chemical Properties

CAS No. : 74431-23-5

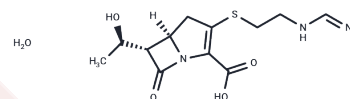
Formula: C<sub>12</sub>H<sub>19</sub>N<sub>3</sub>O<sub>5</sub>S

Molecular Weight: 317.36

Store at low temperature

Storage: Powder: -20°C for 3 years

Actual storage temperature shall be subject to the COA.



## Biological Description

Description	Imipenem monohydrate (Imipenem) is a carbapenem antibiotic isolated from the microorganism <i>Streptomyces cattleya</i> , and is a $\beta$ lactam antibiotic. Imipenem monohydrate acts on the bacterial cell wall, and is a broadly effective inhibitor of a wide range of Gram-positive and negative bacteria.
Targets(IC50)	Antibacterial, Antibiotic
In vivo	<p><b>METHODS:</b> To study the effect on tuberculosis, Imipenem monohydrate (100 mg/kg) was administered subcutaneously to a mouse model of tuberculosis twice daily for 28 days.</p> <p><b>RESULTS:</b> Imipenem significantly reduced the number of <i>Mycobacterium tuberculosis</i> in the lungs and spleens, and increased the survival rate of the mice. [1]</p> <p><b>METHODS:</b> To assess the effect on the kinetics of the inflammatory response in a mouse model of sepsis, Imipenem monohydrate (25-125 mg/kg) was administered subcutaneously to CLP-induced septic mice once daily for three days.</p> <p><b>RESULTS:</b> Subcutaneous injection of Imipenem had a dose-dependent effect on the inflammatory response in septic mice. In septic mice, the 25 mg/kg dose of Imipenem resulted in better pathology, lower inflammatory mediators and improved survival. [2]</p>

## Solubility Information

Solubility	H <sub>2</sub> O: 6.81 mg/mL (21.46 mM), Sonication is recommended. DMSO: < 1 mg/mL (insoluble or slightly soluble) (< 1 mg/ml refers to the product slightly soluble or insoluble)
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### Preparing Stock Solutions

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	1mg	5mg	10mg
1 mM	3.151 mL	15.755 mL	31.510 mL
5 mM	0.6302 mL	3.151 mL	6.302 mL
10 mM	0.3151 mL	1.5755 mL	3.151 mL
50 mM	0.063 mL	0.3151 mL	0.6302 mL

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Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

### Reference

Chambers HF, et al. Imipenem for treatment of tuberculosis in mice and humans. *Antimicrob Agents Chemother.* 2005 Jul;49(7):2816-21.

Khosrojerdi A, et al. Imipenem alters systemic and liver inflammatory responses in CLP- induced sepsis mice in a dose-dependent manner. *Int Immunopharmacol.* 2021 Apr;93:107421.

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