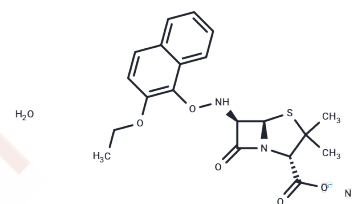


## Nafcillin sodium monohydrate

## Chemical Properties

CAS No. :	7177-50-6
Formula:	C <sub>21</sub> H <sub>21</sub> N <sub>2</sub> O <sub>5</sub> Na·H <sub>2</sub> O
Molecular Weight:	454.47
Storage:	Powder: -20°C for 3 years   In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.



## Biological Description

Description	Nafcillin sodium monohydrate (CL 8491) is the sodium salt form of nafcillin, a semi-synthetic naphthalene, penicillin-related Nafcillin inhibits bacterial wall synthesis by a mechanism of action similar to penicillin. Penicillinase-resistant Nafcillin is used to treat infections caused by penicillin-resistant strains of Staphylococci.
Targets(IC50)	Antibacterial, Antibiotic
In vivo	Nafcillin sodium inactivates beta-lactamase by forming a covalent acyl-enzyme intermediate with Ser-70. At concentrations greater than 80 mM, and exposure times less than 200 seconds, Nafcillin completely inhibits the activity of beta-lactamase. Upon removal of Nafcillin, the inhibited enzyme can be fully reactivated with a rate constant of $2 \times 10^{-3}/s$ at 25°C.

## Solubility Information

Solubility	Ethanol: 16 mg/mL (35.21 mM), Sonication is recommended. H <sub>2</sub> O: 83 mg/mL (182.63 mM), Sonication is recommended. DMSO: 142.8 mg/mL (314.21 mM), Sonication is recommended. ( $< 1$ mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: 10 mg/mL (22 mM), Solution. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 3.3 mg/mL (7.26 mM), Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

### Preparing Stock Solutions

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	1mg	5mg	10mg
1 mM	2.2004 mL	11.0018 mL	22.0037 mL
5 mM	0.4401 mL	2.2004 mL	4.4007 mL
10 mM	0.220 mL	1.1002 mL	2.2004 mL
50 mM	0.044 mL	0.220 mL	0.4401 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

Tan AK, et al. *Biochem J*, 1992, 281 ( Pt 1), 191-196.

Hong S, Sun Y, Sun D, et al. Microbiome assembly on *Drosophila* body surfaces benefits the flies to combat fungal infections. *iScience*. 2022: 104408

Schwichtenberg AH. *JAMA*, 1965, 191:930-931.

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