

Clavulanic Acid

Chemical Properties

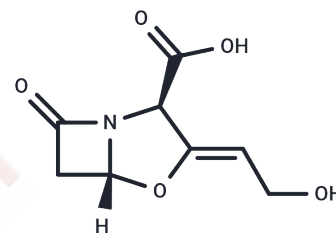
CAS No. : 58001-44-8

Formula: C₈H₉NO₅

Molecular Weight: 199.16

Storage: Store at low temperature, Store under nitrogen
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	Clavulanic Acid(RX-10100), a major beta-lactam antibiotic produced by the organism <i>Streptomyces claveris</i> , is a potent bacterial beta-lactamase inhibitor used in the study of infections caused by bacteria. Clavulanic Acid has a broad spectrum of biological activity and is active against a wide variety of Gram-positive and Gram-negative bacteria.
Targets(IC50)	Antibacterial, Antibiotic, Antifungal
In vitro	Clavulanic acid exhibits synergistic antibacterial activity with ampicillin against microorganisms producing β -lactamase[2]. Clavulanic acid inhibits strains Ab11 and Ab51 with a minimum inhibitory concentration (MIC) ranging from 2 to 8 μ g/mL[4].
In vivo	In C57BL/6 mice with <i>Pseudomonas aeruginosa</i> pneumonia, intraperitoneal injection of clavulanic acid (13 mg/kg) reduces bacterial burden in the lungs[4]. In C57BL/6 mice infected with Ab51, intraperitoneal injection of clavulanic acid (13 mg/kg) shows a half-life ($t_{1/2}$) of 6.69 hours and an area under the curve (AUC) of 4.03 mg·h/L in a lung infection model[4]. In a rat model of carrageenan-induced paw edema, intraperitoneal injection of clavulanic acid (100-300 mg/kg) exhibits anti-inflammatory effects[3].

Solubility Information

Solubility	DMSO: 10 mg/mL (50.21 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 1 mg/mL (5.02 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

	1mg	5mg	10mg
1 mM	5.0211 mL	25.1054 mL	50.2109 mL
5 mM	1.0042 mL	5.0211 mL	10.0422 mL
10 mM	0.5021 mL	2.5105 mL	5.0211 mL
50 mM	0.1004 mL	0.5021 mL	1.0042 mL

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

Parag S Saudagar, et al. Clavulanic acid: a review. *Biotechnol Adv.* Jul-Aug 2008;26(4):335-51

Neu HC, et al. Clavulanic acid, a novel inhibitor of beta-lactamases. *Antimicrob Agents Chemother.* 1978 Nov;14(5):650-5.

Soyocak A, et al. Tannic acid exhibits anti-inflammatory effects on formalin-induced paw edema model of inflammation in rats. *Hum Exp Toxicol.* 2019 Nov;38(11):1296-1301.

Beceiro A, et al. In vitro activity and in vivo efficacy of clavulanic acid against *Acinetobacter baumannii*. *Antimicrob Agents Chemother.* 2009 Oct;53(10):4298-304.

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