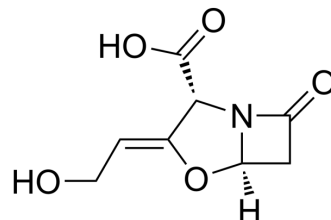


Clavulanic acid

Cat. No.:	HY-A0256
CAS No.:	58001-44-8
Molecular Formula:	C ₈ H ₉ NO ₅
Molecular Weight:	199.16
Target:	Antibiotic; Bacterial; Beta-lactamase
Pathway:	Anti-infection
Storage:	4°C, protect from light, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro	DMSO : 13.89 mg/mL (69.74 mM); ultrasonic and warming and heat to 60°C)				
		Solvent	Mass		
		Concentration	1 mg	5 mg	10 mg
	Preparing Stock Solutions	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	
Please refer to the solubility information to select the appropriate solvent.					
In Vivo	1. Add each solvent one by one: PBS Solubility: 6.25 mg/mL (31.38 mM); Clear solution; Need ultrasonic				
	2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (12.55 mM); Clear solution				
	3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (12.55 mM); Clear solution				

BIOLOGICAL ACTIVITY

Description	Clavulanic acid is a naturally occurring powerful bacterial β-lactamases inhibitor for research of infections caused by bacteria, including infections of the ears. Clavulanic acid is active against a wide spectrum of gram-positive and gram-negative bacterias ^[1] .
IC₅₀ & Target	β-lactam
In Vitro	Clavulanic acid shows a synergistic antibacterial action (against β-lactamase-producing organisms) with Ampicillin ^[2] . Clavulanic acid inhibits Ab11 and Ab51 strain with MICs of 2-8 μg/mL ^[3] .

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

In Vivo

Clavulanic acid (13 mg/kg, i.p.) decreases the bacterial load in the lung of an *A. baumannii* infected C57BL/6 mice pneumonia model^[3].

Clavulanic acid (13 mg/kg, i.p.) shows a $t_{1/2}$ of 6.69 h, AUC of 4.03 mg·h/L in Ab51 infected C57BL/6 mice pneumonia model^[3].

Clavulanic acid (100-300 mg/kg, i.p.) shows anti-inflammatory effects on Carrageenan (HY-125474)-induced paw edema rats model^[4].

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

CUSTOMER VALIDATION

- Nat Commun. 2022 Mar 2;13(1):1116.
- Int J Mol Sci. 2023 Oct 27, 24(21), 15657.
- Genomics. 2022: 110527.
- Biomed Res Int. 2018 Jul 2;2018:3579832.

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REFERENCES

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

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

[3]. 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.

[4]. 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.

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

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