



# SZABO SCANDIC

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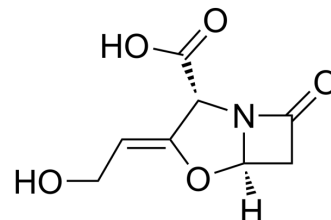
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## Clavulanic acid

|                    |                                                                                                                                              |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Cat. No.:          | HY-A0256                                                                                                                                     |
| CAS No.:           | 58001-44-8                                                                                                                                   |
| Molecular Formula: | C <sub>8</sub> H <sub>9</sub> NO <sub>5</sub>                                                                                                |
| Molecular Weight:  | 199.16                                                                                                                                       |
| Target:            | Antibiotic; Bacterial; Beta-lactamase                                                                                                        |
| Pathway:           | Anti-infection                                                                                                                               |
| Storage:           | 4°C, protect from light, stored under nitrogen<br>* 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)<br>H <sub>2</sub> O : 7 mg/mL (35.15 mM; ultrasonic and warming and heat to 60°C) |                                      |           |            |            |       |
|                                                                               | Preparing Stock Solutions                                                                                                                                | <div>Solvent<br/>Concentration</div> | Mass      | 1 mg       | 5 mg       | 10 mg |
|                                                                               |                                                                                                                                                          |                                      |           |            |            |       |
|                                                                               |                                                                                                                                                          | 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: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline<br>Solubility: ≥ 2.5 mg/mL (12.55 mM); Clear solution                |                                      |           |            |            |       |
|                                                                               | 2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)<br>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 <sup>[1]</sup> .                                          |
| IC <sub>50</sub> & Target | β-lactam                                                                                                                                                                                                                                                                                                                     |
| In Vitro                  | Clavulanic acid shows a synergistic antibacterial action (against β-lactamase-producing organisms) with Ampicillin <sup>[2]</sup> . Clavulanic acid inhibits Ab11 and Ab51 strain with MICs of 2-8 μg/mL <sup>[3]</sup> .<br>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<sup>[3]</sup>.

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<sup>[3]</sup>.

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

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.
- bioRxiv. 2024 May 10.
- 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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