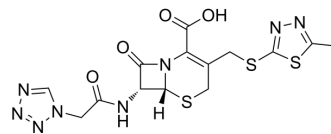


Cefazolin

Cat. No.:	HY-B1892
CAS No.:	25953-19-9
Molecular Formula:	C ₁₄ H ₁₄ N ₈ O ₄ S ₃
Molecular Weight:	454.51
Target:	Antibiotic; Bacterial
Pathway:	Anti-infection
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	DMSO : 250 mg/mL (550.04 mM; Need ultrasonic)					
		Solvent Concentration	Mass	1 mg	5 mg	10 mg
	Preparing Stock Solutions	1 mM	2.2002 mL	11.0009 mL	22.0017 mL	
		5 mM	0.4400 mL	2.2002 mL	4.4003 mL	
		10 mM	0.2200 mL	1.1001 mL	2.2002 mL	
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.08 mg/mL (4.58 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.08 mg/mL (4.58 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (4.58 mM); Clear solution 					

BIOLOGICAL ACTIVITY

Description	Cefazolin (Cephazolin) is a first-generation cephalosporin antibiotic and can be used in varieties of bacterial infections research ^[1] . Cefazolin has anti-inflammatory effect and can attenuate post-operative cognitive dysfunction (POCD) ^[2] .
IC₅₀ & Target	β-lactam
In Vitro	<p>Cefazolin (0-300 μg/ml; 6 or 24 h) has a direct anti-inflammatory effect on C8-B4 cells stimulated by lipopolysaccharide^[2].</p> <p>?Cefazolin (0-400 μM; 72 h) treatment inhibits IL-2, IL-4 and IL-15-induced cell proliferation^[3].</p> <p>?Cefazolin (100-400 μM; 30 min) treatment inhibits IL-2, IL-4, IL-15 and IL-21-stimulated JAK3 phosphorylation^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

Cell Viability Assay^[2]

Cell Line:	C8-B4 cells
Concentration:	0, 50, 100, 150, 200, 250, or 300 µg/ml
Incubation Time:	6 or 24 hours
Result:	Inhibited the increase of IL-1β at all doses, but inhibited the increase of IL-6 only at 200 µg/ml.

Cell Proliferation Assay^[3]

Cell Line:	PBMC, and TF-1 cells
Concentration:	0, 100, 200, and 400 µM
Incubation Time:	72 hours
Result:	Reduced IL-2, IL-4 and IL-15-induced cell proliferation, suggested that Cefazolin interferes not only with IL-15Rα, but also with IL-2/IL-15Rβ and/or γ _c .

Cell Proliferation Assay^[3]

Cell Line:	PBMC, NK-92, and TF-1 cells
Concentration:	0, 100, 200, and 400 µM
Incubation Time:	30 min
Result:	Diminished the phosphorylation of JAK3 in response to the cytokine treatment, concluded suppressing signal transduction by γ _c receptors.

In Vivo

Cefazolin sodium pentahydrate (Subcutaneous injection; 300-500 mg/kg; once daily; 5 d) treatment improves learning and memory in mice after surgery^[2].

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

Animal Model:	6- to 8-week-old male CD-1 mice underwent clinical exploratory laparotomy ^[2]
Dosage:	300-500 mg/kg
Administration:	Subcutaneous injection; 300-500 mg/kg; once daily; 5 days
Result:	Attenuated learning and memory dysfunction induced by the surgery.

CUSTOMER VALIDATION

- Nat Commun. 2022 Mar 2;13(1):1116.
- mSystems. 2023 Dec 4:e0102623.
- iScience. 5 January 2022, 103731.
- Front Aging Neurosci. 2021 Oct 13;13:748637.
- ACS Omega. March 3, 2022.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. R Quintiliani, et al. Cefazolin. Ann Intern Med. 1978 Nov;89(5 Pt 1):650-6.

[2]. Peng Liang, et al. Perioperative use of cefazolin ameliorates postoperative cognitive dysfunction but induces gut inflammation in mice. J Neuroinflammation. 2018 Aug 22;15(1):235.

[3]. Barbara Żyżyńska-Granica, et al. The anti-inflammatory potential of cefazolin as common gamma chain cytokine inhibitor. Sci Rep. 2020 Feb 19;10(1):2886.

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

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