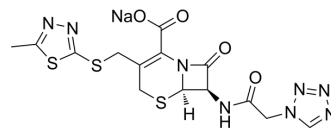


Cefazolin sodium

Cat. No.:	HY-B1078
CAS No.:	27164-46-1
Molecular Formula:	C ₁₄ H ₁₃ N ₈ NaO ₄ S ₃
Molecular Weight:	476
Target:	Bacterial; Antibiotic
Pathway:	Anti-infection
Storage:	4°C, sealed storage, away from moisture and light * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

H₂O : ≥ 100 mg/mL (210.08 mM)
 DMSO : 100 mg/mL (210.08 mM; Need ultrasonic)
 * "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.1008 mL	10.5042 mL	21.0084 mL
	5 mM	0.4202 mL	2.1008 mL	4.2017 mL
	10 mM	0.2101 mL	1.0504 mL	2.1008 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: PBS
Solubility: 100 mg/mL (210.08 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (5.25 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (5.25 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cefazolin sodium is a first-generation cephalosporin antibiotic and can be used in varieties of bacterial infections research^[1]. Cefazolin sodium has anti-inflammatory effect and can attenuate post-operative cognitive dysfunction (POCD)^[2].

IC₅₀ & Target

β-lactam

In Vitro

Cefazolin sodium (0-300 μg/ml; 6 or 24 h) has a direct anti-inflammatory effect on C8-B4 cells stimulated by

lipopolysaccharide^[2].

Cefazolin sodium (0-400 μ M; 72 h) treatment inhibits IL-2, IL-4 and IL-15-induced cell proliferation^[3].

Cefazolin sodium (0-400 μ M; 30 min) treatment inhibits IL-2, IL-4, IL-15 and IL-21-stimulated JAK3 phosphorylation^[3].

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

Cell Viability Assay^[2]

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

Cell Proliferation Assay^[3]

Cell Line:	PBMC, and TF-1 cells
Concentration:	0, 100, 200, and 400 μ M
Incubation Time:	72 hours
Result:	Reduced IL-2, IL-4 and IL-15-induced cell proliferation, suggested that Cefazolin interferes not only with IL-15R α , but also with IL-2/IL-15R β and/or γ_c .

Cell Viability Assay^[3]

Cell Line:	PBMC, NK-92, and TF-1 cells
Concentration:	0, 100, 200, and 400 μ M
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 (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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