Cephradine

Cat. No.: HY-B1156

CAS No.: 38821-53-3

Molecular Formula: $C_{16}H_{19}N_3O_4S$

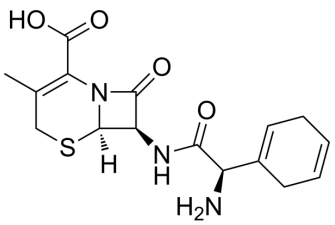
Molecular Weight: 349.4

Target: Bacterial; TOPK; Antibiotic

Pathway: Anti-infection; Cell Cycle/DNA Damage

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

H_2O : 8.33 mg/mL (23.84 mM; Need ultrasonic)

DMSO : ≥ 3.6 mg/mL (10.30 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.8620 mL	14.3102 mL	28.6205 mL
5 mM	0.5724 mL	2.8620 mL	5.7241 mL
10 mM	0.2862 mL	1.4310 mL	2.8620 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 4.55 mg/mL (13.02 mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description

Cephradine (Cefradine) is a broad-spectrum and orally active cephalosporin. Cephradine is active against both gram-positive and gram-negative pathogens. Cephradine is effective in eradicating most penicillinase-producing organisms. Cephradine has been used in the research of genitourinary, gastrointestinal and respiratory tract infections, and in infections of the skin and soft tissues. Cephradine blocks solar-ultraviolet induced skin inflammation through direct inhibition of TOPK[1][2][3].

IC_{50} & Target

β-lactam

In Vitro

Cephradine (0~8 μg/mL; 12 hours) makes bacterial viability rapidly increased at antibiotic concentrations below the MIC (minimum inhibitory concentration) of 0.70 μg/mL at both pH 7.4 and pH 5.5[4].

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

In Vivo

Cephradine (25 mg/kg; s.c.; 11 days) reduces the bacterial density and counts in the abscesses[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Nondiabetic mice
Dosage:	25 mg/kg
Administration:	S.c.; 11 days
Result:	Reduced the bacterial density and counts in the abscesses.

CUSTOMER VALIDATION

- Chemosphere. 2019 Jun;225:378-387.

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REFERENCES

[1]. Schwinghammer TL, et al. Pharmacokinetics of cephradine administered intravenously and orally to young and elderly subjects. J Clin Pharmacol. 1990;30(10):893-899

[2]. Caloza DL Jr, et al. Intravenous use of cephradine and cefazolin against serious infections. Antimicrob Agents Chemother. 1979;15(1):119-122.

[3]. Fan X, et al. Cefradine blocks solar-ultraviolet induced skin inflammation through direct inhibition of T-LAK cell-originated protein kinase. Oncotarget. 2016;7(17):24633-24645

[4]. Kang S, et al. In Vitro and In Vivo Antimicrobial Activity of Antibiotic-Conjugated Carriers with Rapid pH-Responsive Release Kinetics. Adv Healthc Mater. 2019;8(14):e1900247.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA