Cephalexin monohydrate

Cat. No.: HY-B0200B

CAS No.: 23325-78-2

Molecular Formula: $C_{16}H_{19}N_3O_5S$

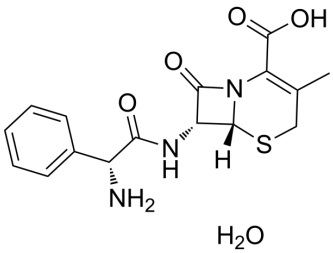
Molecular Weight: 365.4

Target: Bacterial; Antibiotic; Penicillin-binding protein (PBP)

Pathway: Anti-infection

Storage:

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : 6.67 mg/mL (18.25 mM; Need ultrasonic)

H_2O : 2 mg/mL (5.47 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.7367 mL	13.6836 mL	27.3673 mL
5 mM	0.5473 mL	2.7367 mL	5.4735 mL
10 mM	0.2737 mL	1.3684 mL	2.7367 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 8.33 mg/mL (22.80 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.67 mg/mL (1.83 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.67 mg/mL (1.83 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.67 mg/mL (1.83 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cephalexin (Cefalexin) monohydrate is a potent, orally active new semisynthetic cephalosporin antibiotic with a broad antibacterial spectrum. Cephalexin (Cefalexin) monohydrate has antibacterial activity against a wide variety of gram-positive and gram-negative bacteria. Cephalexin (Cefalexin) monohydrate targets penicillin-binding proteins (PBPs) to inhibit bacterial cell wall assembly. Cephalexin (Cefalexin) monohydrate is used for the research of pneumonia, strep throat,

	and bacterial endocarditis, et al[1][2].
IC_{50} & Target	β-lactam
In Vitro	Cephalexin (Cefalexin) monohydrate (10 μg/mL) disrupts polymer peptidoglycan (PG) biogenesis by inactivating enzymes called penicillin-binding proteins (PBPs)[1]. Cephalexin (Cefalexin) monohydrate inhibits a broad spectrum of grampositive and gram-negative organisms with MIC values of 2, 2, 2, 2, 4, 4.4 and 5.7 μg/mL for Bacillus anthracis, Edwardsiella taFda, Vibrio cholera, Pasteurella multocida, Edwardsiella tarda, Alcaligenes sp and Proteus rettgeri, respectively[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Cephalexin (Cefalexin) monohydrate (0-50 mg/kg; p.o.; for 3.5 hours) has antibacterial activity in male Swiss-Webster mice with infected bacterial[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Swiss-Webster mice with infected bacterial[2]
Dosage:	0-50 mg/kg
Administration:	Oral administration; for 3.5 hours
Result:	Had antibacterial activity against Streptococcus pyogenes, Streptococcus pneumoniae, Staphylococcus aureus and several gram-negative species mice.

CUSTOMER VALIDATION

- Theranostics. 2022 Jan 1;12(3):1187-1203.
- Chemosphere. 2021, 131417.
- Chemosphere. 2019 Jun;225:378-387.
- J Med Chem. 2021 Sep 21.
- Infect Immun. 2018 May 22;86(6). pii: e00090-18.

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REFERENCES

[1]. Cho H, et, al. Beta-lactam antibiotics induce a lethal malfunctioning of the bacterial cell wall synthesis machinery. Cell. 2014 Dec 4;159(6):1300-11.

[2]. Buck RE, et, al. Cefadroxil, a new broad-spectrum cephalosporin. Antimicrob Agents Chemother. 1977 Feb;11(2):324-30.

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