Cephalexin

Cat. No.: HY-B0200

CAS No.: 15686-71-2

Molecular Formula: $C_{16}H_{17}N_3O_4S$

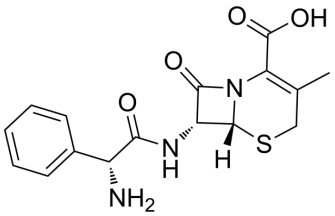
Molecular Weight: 347.39

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

H_2O : 5 mg/mL (14.39 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8786 mL	14.3930 mL	28.7861 mL
	5 mM	0.5757 mL	2.8786 mL	5.7572 mL
	10 mM	0.2879 mL	1.4393 mL	2.8786 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 25 mg/mL (71.97 mM); Clear solution; Need ultrasonic and warming

BIOLOGICAL ACTIVITY

Description

Cephalexin (Cefalexin) is a potent, orally active semisynthetic cephalosporin antibiotic with a broad antibacterial spectrum. Cephalexin has antibacterial activity against a wide variety of gram-positive and gram-negative bacteria. Cephalexin targets penicillin-binding proteins (PBPs) to inhibit bacterial cell wall assembly. Cephalexin is used for the research of pneumonia, strep throat, and bacterial endocarditis, et al[1][2].

IC_{50} & Target

β-lactam

In Vitro

Cephalexin (10 μg/mL) disrupts polymer peptidoglycan (PG) biogenesis by inactivating enzymes called penicillin-binding proteins (PBPs)[1].

Cephalexin 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 (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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