Moxifloxacin

Cat. No.: HY-66011A

CAS No.: 151096-09-2

Molecular Formula: $C_{21}H_{24}FN_3O_4$

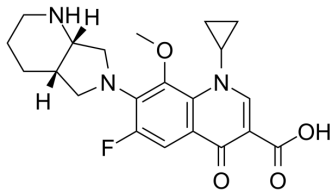
Molecular Weight: 401.43

Target: Bacterial; Antibiotic

Pathway: Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (249.11 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.4911 mL	12.4555 mL	24.9109 mL
	5 mM	0.4982 mL	2.4911 mL	4.9822 mL
	10 mM	0.2491 mL	1.2455 mL	2.4911 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (6.23 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.23 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.23 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Moxifloxacin is an orally active 8-methoxyquinolone antimicrobial for use in the treatment of acute bacterial sinusitis, acute bacterial exacerbations of chronic bronchitis, and community-acquired pneumonia[1][2].

IC_{50} & Target

Bacterial[1]

In Vitro

The in vitro activities of Moxifloxacin and Amoxicillin are compared by time-kill curve and inhibition of intracellular growth experiments by using a model of bone marrow-derived mouse macrophages infected by L. monocytogenes EGDe.

Moxifloxacin acts much more rapidly, beginning to exert its effects in the first 3 h and achieving complete broth sterilization within 24 h of incubation. Moxifloxacin appears to have a protective effect against macrophage lysis, as many cells are still viable after 24 h of incubation[3].

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

In Vivo

Moxifloxacin (12 mg/kg; intravenous injection; once-three times per day; for 7 days; white male Wistar rats) treatment every 8 hours is accompanied by longer survival. Tissue cultures 30 hours after bacterial challenge shows considerably less bacterial overgrowth in the spleens and lungs of moxifloxacin-treated than in salinetreated animals and without being toxic [4].

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

Animal Model:	144 white male Wistar rats (18-22 weeks; 300-400 g) infected Stenotrophomonas maltophilia[4]
Dosage:	12 mg/kg
Administration:	Intravenous injection; once per day, twice per day, three times per day; for 7 days
Result:	Showed considerably less bacterial overgrowth in the spleens and lungs and without being toxic.

CUSTOMER VALIDATION

- Nat Commun. 2022 Mar 2;13(1):1116.
- ACS Chem Biol. 2021 Dec 15.
- Antibiotics (Basel). 2022, 11(2), 192.
- Infect Drug Resist. 2021 Sep 14;14:3729-3736.

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REFERENCES

[1]. Culley, C.M., et al., Moxifloxacin: clinical efficacy and safety. Am J Health Syst Pharm, 2001. 58(5): p. 379-88.

[2]. Balfour JA, et al. Moxifloxacin: a review of its clinical potential in the management of community-acquired respiratory tract infections. Drugs. 2000 Jan;59(1):115-39.

[3]. Grayo S, et al. Comparison of the in vitro efficacies of moxifloxacin and amoxicillin against Listeria monocytogenes. Antimicrob Agents Chemother. 2008 May;52(5):1697-702.

[4]. Ioannidis O, et al. Effect of moxifloxacin on survival, lipid peroxidation and inflammation in immunosuppressed rats with soft tissue infection caused by Stenotrophomonas maltophilia. Microbiol Immunol. 2014 Feb;58(2):96-102.

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