Levofloxacin hydrate

Cat. No.: HY-B0330A

CAS No.: 138199-71-0

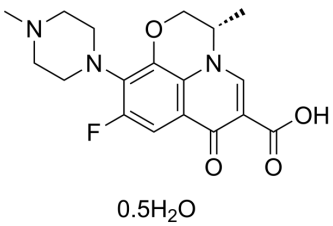
Molecular Formula: $C_{18}H_{21}FN_3O_{4\cdot5}$

Molecular Weight: 370.38

Target: Bacterial; Antibiotic; Topoisomerase; DNA/RNA Synthesis; Orthopoxvirus

Pathway: Anti-infection; Cell Cycle/DNA Damage

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



$0.5H_2O$

SOLVENT & SOLUBILITY

In Vitro

H_2O : ≥ 50 mg/mL (135.00 mM)
DMSO : 8.33 mg/mL (22.49 mM; Need ultrasonic)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.6999 mL	13.4996 mL	26.9993 mL
5 mM	0.5400 mL	2.6999 mL	5.3999 mL
10 mM	0.2700 mL	1.3500 mL	2.6999 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (269.99 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.83 mg/mL (2.24 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.83 mg/mL (2.24 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.83 mg/mL (2.24 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Levofloxacin hydrate (Levofloxacin hemihydrate) is an orally active antibiotic and is active against both Gram-positive and Gram-negative bacteria. Levofloxacin hydrate inhibits the DNA gyrase and topoisomerase IV. Levofloxacin hydrate can be used for chronic periodontitis, airway inflammation and BK Viremia research. Levofloxacin hydrate shows anti-orthopoxvirus activity[1][2][3][4].

IC_{50} & Target	TOPO IV
In Vitro	Levofloxacin shows inhibition effects to M. tuberculosis susceptible strains OFLO, LVFX, and SPFX with MIC_{50} values of 1.0, 0.5 and 0.25 μg/mL, respectively[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Levofloxacin (10.7 mg/kg; i.p., once daily for 10 days or 3 weeks) time-dependently induces toxic effects on liver and heart in albino mice[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Matured male Albino mice[4]
Dosage:	10.7 mg/kg
Administration:	Intraperitoneal injection; 10.7 mg/kg, once daily for 10 days or 3 weeks
Result:	Induced severe congestion of blood vessels in the portal area, central veins with inflammatory cells infiltration, necrosis with pyknosis of cardiac muscle nuclei and apoptosis, degeneration and necrosis of hepatocytes.

CUSTOMER VALIDATION

- Nat Commun. 2022 Mar 2;13(1):1116.
- Emerg Microbes Infect. 2024 Dec;13(1):2321981.
- Clin Chem. 2019 Dec;65(12):1522-1531.
- Antimicrob Agents Chemother. 2021 Feb 17;65(3):e01921-20.
- Antibiotics (Basel). 2022, 11(2), 192.

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REFERENCES

[1]. Drlica K, et al. DNA gyrase, topoisomerase IV, and the 4-quinolones. Microbiol Mol Biol Rev. 1997 Sep;61(3):377-92.

[2]. Smee DF, et al. A review of compounds exhibiting anti-orthopoxvirus activity in animal models. Antiviral Res. 2003 Jan;57(1-2):41-52.

[3]. JI B, et al. In vitro and in vivo activities of levofloxacin against Mycobacterium tuberculosis. Antimicrob Agents Chemother. 1995 Jun;39(6):1341-4.

[4]. Rand A, et al. Effect of levofloxacin on some body tissues in mice. Iraqi Journal of Veterinary Sciences, 2021.

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