# Levofloxacin hydrate

**Cat. No.:** HY-B0330A

**CAS No.:** 138199-71-0

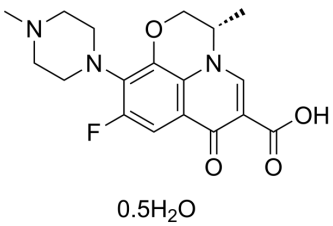
**Molecular Formula:** $C_{18}H_{21}FN_3O_{4.5}$

**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].<br>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].<br>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.
- ACS Infect Dis. 2024 Apr 12;10(4):1327-1338.
- Antimicrob Agents Chemother. 2021 Feb 17;65(3):e01921-20.

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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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