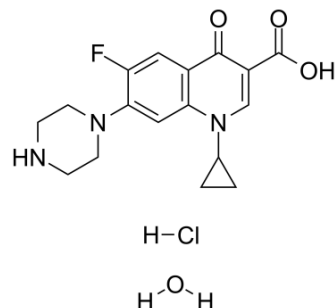


Ciprofloxacin hydrochloride monohydrate

Cat. No.:	HY-B0356B
CAS No.:	86393-32-0
Molecular Formula:	C ₁₇ H ₂₁ ClFN ₃ O ₄
Molecular Weight:	385.82
Target:	Bacterial; Antibiotic
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Ciprofloxacin hydrochloride is a fluoroquinolone antibiotic, exhibiting potent antibacterial activity.
In Vitro	Ciprofloxacin (hydrochloride monohydrate) is a fluoroquinolone antibiotic, exhibiting potent antibacterial activity ^[1] . Ciprofloxacin (hydrochloride monohydrate) (CIP) shows potent activity against <i>Y. pestis</i> with MIC ₉₀ of 0.03 µg/mL ^[2] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Ciprofloxacin (hydrochloride monohydrate) (1 mg/L) induces glutathione-S-transferase (GST) activity, in contrast with inhibited GST and Catalase (CAT) of larvae exposed to enrofloxacin. Ciprofloxacin (hydrochloride monohydrate) (≥10 µg/L) is ecotoxic for development, growth, detoxifying, and oxidative stress enzymes in anuran amphibian larvae ^[1] . In a murine model of pneumonic plague, Ciprofloxacin (hydrochloride monohydrate) (30 mg/kg, i.p.) results in a drug exposure which is similar to the drug exposure observed in human following a 500 mg dose of oral Ciprofloxacin (hydrochloride monohydrate). Intraperitoneal Ciprofloxacin (hydrochloride monohydrate) reduces the lung bacterial load compare to controls treated with intraperitoneal PBS ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[2]	Bacterial inocula are prepared by suspending colonies into Mueller-Hinton broth (CAMHB) (containing Ciprofloxacin (hydrochloride monohydrate)) from 18 to 24 h (<i>B. anthracis</i>) or 42 to 48 h (<i>Y. pestis</i>) on sheep blood agar (SBA) plates that are incubated at 35°C. Suspended cultures are diluted with CAMHB to a bacterial cell density of 10 ⁵ CFU/mL adjusted based on the optical density at 600 nm. To each well of the 96-well plate, 50 µL of dilutions is added for a final inoculum of ~5×10 ⁴ CFU/well. Plates are incubated at 35°C. MICs are determined visually at 18 to 24 h (<i>B. anthracis</i>) or 42 to 48 h (<i>Y. pestis</i>) and also by absorbance at 600 nm ^[2] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration ^[3]	Female BALB/cAnNCrl (BALB/c) mice, 8 to 10 weeks old and 20 g (±4 g) are used in this assay. A single dose of Ciprofloxacin (hydrochloride monohydrate) (30 mg/kg) is administered to mice (n=30) via the intraperitoneal (i.p.) route. The mice (n=3/time point/group) are culled at 1, 10, 20, or 30 min and 1, 1.5, 2, 4, 8, 12 h following Ciprofloxacin (hydrochloride monohydrate) administration and 1, 15, or 30 min and 1, 2, 4, 6, 10, 18, or 24 h following DRCFI or CFI administration. Blood sampling points are chosen based upon the short half-life of Ciprofloxacin (hydrochloride monohydrate) and longer half-life of CFI. Blood and lungs (whole organ) are collected post mortem for analysis. The lung doses following CFI or DRCFI

administration are calculated using the concentration of Ciprofloxacin (hydrochloride monohydrate) in the lung samples at 1 min post-administration^[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Adv Sci. 2020 Jul.
- Chemosphere. 2019 Jun;225:378-387.
- J Antimicrob Chemother. 2020 Mar 10. pii: dkaa053.
- Int J Antimicrob Agents. 2018 Aug;52(2):269-271.
- Research Square Preprint. 2020 Jun.

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REFERENCES

- [1]. Peltzer PM, et al. Ecotoxicity of veterinary enrofloxacin and ciprofloxacin antibiotics on anuran amphibian larvae. Environ Toxicol Pharmacol. 2017 Feb 4. pii: S1382-6689(17)30029-7.
- [2]. Steenbergen J, et al. In Vitro and In Vivo Activity of Omadacycline Against Two Biothreat Pathogens: Bacillus anthracis and Yersinia pestis. Antimicrob Agents Chemother. 2017 Feb 21.
- [3]. Hamblin KA, et al. Inhaled Liposomal Ciprofloxacin Protects against a Lethal Infection in a Murine Model of Pneumonic Plague. Front Microbiol. 2017 Feb 6;8:91.

Caution: Product has not been fully validated for medical applications. For research use only.

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