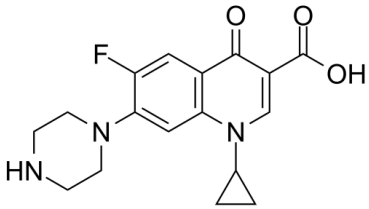
Data Sheet

Product Name:	Ciprofloxacin
Cat. No.:	CS-2410
CAS No.:	85721-33-1
Molecular Formula:	C17H18FN3O3
Molecular Weight:	331.34
Target:	Bacterial
Pathway:	Anti-infection
Solubility:	DMSO : < 1 mg/mL (insoluble or slightly soluble)



BIOLOGICAL ACTIVITY:

Ciprofloxacin (Bay-09867) is a fluoroquinolone antibiotic, exhibiting potent **antibacterial** activity. **In Vitro:** Ciprofloxacin (Bay-09867) is a fluoroquinolone antibiotic, exhibiting potent antibacterial activity[1]. Ciprofloxacin (CIP) shows potent activity against Y. pestis with MIC_{90} of 0.03 μg/mL[2]. **In Vivo:** Ciprofloxacin (Bay-09867) (1 mg/L) induces glutathione-S-transferase (GST) activity, in contrast with inhibited GST and Catalase (CAT) of larvae exposed to enrofloxacin. Ciprofloxacin (Bay-09867) (≥10 μg/L) and enrofloxacin are ecotoxic for development, growth, detoxifying, and oxidative stress enzymes in anuran amphibian larvae[1]. In a murine model of pneumonic plague, Ciprofloxacin (Bay-09867) (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 (Bay-09867). Intraperitoneal Ciprofloxacin (Bay-09867) reduces the lung bacterial load compare to controls treated with intraperitoneal PBS[3].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: Antibiotics (including Ciprofloxacin) are serially diluted 2-fold in 50 μL of cation-adjusted Mueller-Hinton broth (CAMHB). The antibiotic (including Ciprofloxacin) ranges are 8 to 0.004 μg/mL or 64 to 0.03 μg/mL based on a final well volume of 100 μL after inoculation.[2]Bacterial inocula are prepared by suspending colonies into Mueller-Hinton broth (CAMHB) (containing Ciprofloxacin) from 18 to 24 h (B. anthracis) or 42 to 48 h (Y. pestis) 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 (B. anthracis) or 42 to 48 h (Y. pestis) and also by absorbance at 600 nm[2]. **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 (Bay-09867) (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 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 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 in the lung samples at 1 min post-administration[3].

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.

CAIndexNames:

3-Quinolinecarboxylic acid, 1-cyclopropyl-6-fluoro-1,4-dihydro-4-oxo-7-(1-piperazinyl)-

SMILES:

O=C(C1=CN(C2CC2)C3=C(C=C(F)C(N4CCNCC4)=C3)C1=O)O

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