Flumequine

Cat. No.: HY-B0526

CAS No.: 42835-25-6

Molecular Formula: $C_{14}H_{12}FNO_3$

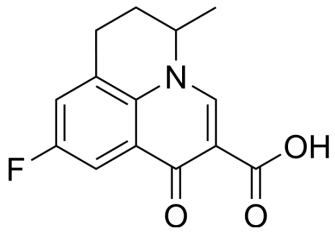
Molecular Weight: 261.25

Target: Bacterial; Topoisomerase; Antibiotic

Pathway: Anti-infection; Cell Cycle/DNA Damage

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 7.69 mg/mL (29.44 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.8278 mL	19.1388 mL	38.2775 mL
5 mM	0.7656 mL	3.8278 mL	7.6555 mL
10 mM	0.3828 mL	1.9139 mL	3.8278 mL

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

BIOLOGICAL ACTIVITY

Description

Flumequine (R-802) is a quinolone antibiotic, and acts as a topoisomerase II inhibitor, with an IC_{50} of 15 μM (3.92 μg/mL).

IC_{50} & Target

Topoisomerase II
15 μM (IC_{50})

Quinolone

In Vitro

Flumequine (R-802) is a topoisomerase II inhibitor, with an IC_{50} of 3.92 μg/mL, and less potently inhibits Gyrase, with an IC_{50} of 1764 μg/mL. Flumequine (0-625 μg/mL) increases migration of nuclear DNA from CHL cells[1]. Flumequine (R-802) inhibits Spanish field isolates of B. hyodysenteriae with MIC_{50} and MIC_{90} of 50 and 100 μg/mL, and MBC_{50} and MBC_{90} of 50, 200 μg/mL, respectively[2]. Flumequine (R-802) suppresses A. salmonicida isolates with MIC ranging from 0.06 to 32 μg/mL[3].

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

In Vivo

Flumequine (R-802) (0-500 mg/kg, p.o.) causes dose-related DNA damage in the stomach, colon, and urinary bladder of mice, 1 and 3 h but not 24 h after its administration[1].

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

PROTOCOL

Cell Assay [1]	The Chinese hamster lung cell line CHL/IU is routinely maintained in monolayer culture in Dulbecco's modified MEM medium supplemented with 10% fetal bovine serum at 37°C under a 5% CO_2 atmosphere. Exponentially growing cells are treated with Flumequine (R-802) dissolved in DMSO for 1 h. The dose range is chosen in order to obtain both damaged and highly damaged cells. Following Flumequine (R-802) treatment, cells are embedded in GP42 agarose dissolved in saline at 1%. Cell number and cell viability are determined for each dose[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Infant and young-adult male ddY mice at 4 and 7 weeks of age, respectively, are used after 1 week of acclimatization. Groups are treated once orally with Flumequine (R-802) at <500 mg/kg. Adult mice are sacrificed at 3 and 24 h after treatment, and 8 organs, the stomach, colon, liver, kidney, urinary bladder, lung, brain, and bone marrow, are removed. Infant mice are sacrificed 3 and 24 h after treatment, and the livers are excised. In another study, the genotoxicity of Flumequine (R-802) is studied in the regenerating liver of adult mice. For this purpose, male mice at 8 weeks-of-age are anesthetized with ether and 3 major lobes of the liver, left lateral lobe, left medial lobe, and right lateral lobe, are removed. Four days after the hepatectomy, mice are subjected to oral administration of Flumequine (R-802) once. They are sacrificed 3 h after FL-treatment and regenerated livers are sampled. Slides for the comet assay are prepared at each set time[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Chemosphere. 2019 Jun;225:378-387.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.
- Microb Pathog. 2023 Apr 22;106122.

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REFERENCES

[1]. Kashida Y, et al. Mechanistic study on flumequine hepatocarcinogenicity focusing on DNA damage in mice. Toxicol Sci. 2002 Oct;69(2):317-21.

[2]. Aller-Morán LM, et al. Evaluation of the in vitro activity of flumequine against field isolates of Brachyspira hyodysenteriae. Res Vet Sci. 2015 Dec;103:51-3.

[3]. Giraud E, et al. Mechanisms of quinolone resistance and clonal relationship among Aeromonas salmonicida strains isolated from reared fish with furunculosis. J Med Microbiol. 2004 Sep;53(Pt 9):895-901.

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