Cefatrizine

Cat. No.: HY-123024

CAS No.: 51627-14-6

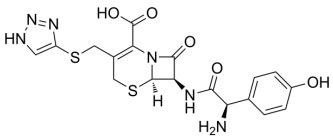
Molecular Formula: $C_{18}H_{18}N_6O_5S_2$

Molecular Weight: 462.5

Target: Apoptosis; Antibiotic; Bacterial

Pathway: Apoptosis; Anti-infection

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



SOLVENT & SOLUBILITY

In Vitro

H_2O : 250 mg/mL (540.54 mM; Need ultrasonic)

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	2.1622 mL	10.8108 mL	21.6216 mL
	5 mM	0.4324 mL	2.1622 mL	4.3243 mL
	10 mM	0.2162 mL	1.0811 mL	2.1622 mL

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

BIOLOGICAL ACTIVITY

Description

Cefatrizine (BL-S-640) is an orally active and broad-spectrum cephalosporin antibiotic. Cefatrizine is also a eEF2K inhibitor, with anti-proliferative activity in human breast cancer cells, which could induce ER stress, leading to cell death. Cefatrizine can be used in studies of cancer and bacterial infection[1][2].

IC_{50} & Target

β-lactam

In Vitro

Cefatrizine (0-100 μM; 24 h) causes a remarkable anti-proliferative effect on MCF-7 and MDA-MB-436 cell growth in a dose-dependent manner[1].

Cefatrizine (30 μM; 12 h) induces ER stress in breast cancer cells[1].

Cefatrizine (12, 24, 36 h) increases level of CHOP (marker of ER stress induced apoptosis) and promotes expressions of core proteins in eEF2K-modulated ER stress pathways (Bip, p-PERK, XBP-1S and p-JNK) in MCF-7 and MDA-MB-436 cells[1].

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

Cell Proliferation Assay[1]

Cell Line:	MCF-7, MDA-MB-436 cells

Concentration:	0-100 μM
Incubation Time:	24 h
Result:	Led to a remarkable anti-proliferative effect on cells and resulted in almost 50% inhibition in the MCF-7 and MDA-MB-436 cells when at 33 μM and 29 μM.

Cell Viability Assay[1]

Cell Line:	MCF-7, MDA-MB-436 cells
Concentration:	30 μM
Incubation Time:	12 h
Result:	Led to massive cytoplasmic vacuolization.

In Vivo

Cefatrizine (BL-S-640) (0.2, 1, 5, 25 mg/kg; p.o.; 4 times daily for 3 days) reduces the number of infecting organisms in the bladder and the kidneys in P. mirabilis intracystically infected model[2].

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Animal Model:	MaleSwiss-Webster mice (19-21 g; P. mirabilis intracystically infected model)[2].
Dosage:	0.2, 1, 5, 25 mg/kg
Administration:	Oral administration; 4 times daily for 3 days.
Result:	Reduced the number of infecting organisms to less than 1,000 in the bladder when 1 mg/kg, and in the kidneys when 0.2 mg/kg.

REFERENCES

[1]. Yao Z, et al. Integrative bioinformatics and proteomics-based discovery of an eEF2K inhibitor (cefatrizine) with ER stress modulation in breast cancer cells. Mol Biosyst. 2016 Mar;12(3):729-36.

[2]. Leitner F, et al. BL-S640, a cephalosporin with a broad spectrum of antibacterial activity: bioavailability and therapeutic properties in rodents. Antimicrob Agents Chemother. 1975 Mar;7(3):306-10.

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