Nitroxoline

Cat. No.: HY-B1159

CAS No.: 4008-48-4

Molecular Formula: $C_9H_6N_2O_3$

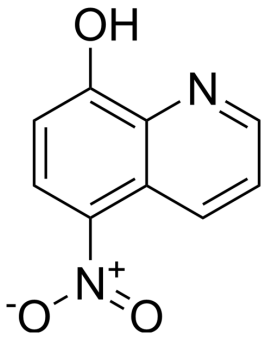
Molecular Weight: 190.16

Target: Bacterial; Autophagy; Antibiotic; Apoptosis

Pathway: Anti-infection; Autophagy; Apoptosis

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 : 50 mg/mL (262.94 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	5.2587 mL	26.2936 mL	52.5873 mL
	5 mM	1.0517 mL	5.2587 mL	10.5175 mL
	10 mM	0.5259 mL	2.6294 mL	5.2587 mL

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

BIOLOGICAL ACTIVITY

Description

Nitroxoline (8-Hydroxy-5-nitroquinoline), an antibiotic, is an orally active antibiofilm agent. Nitroxoline reduces the formation and induces the dispersal of Pseudomonas aeruginosa biofilms by chelation of iron and zinc. Nitroxoline can be used for the urinary tract infections and cancer research[1][2][3].

In Vitro

Biofilm mass synthesis is reduced by up to 80% at sub-MIC Nitroxoline (0.25-16 μg/mL) concentrations in Pseudomonas aeruginosa, and structures formed are reticulate rather than compact. In preformed biofilms, viable cell counts are reduced by 4 logs at therapeutic concentrations[1].

Nitroxoline (2.5-20 μM; 24 hours) effectively inhibits cell survival of small-cell lung cancer (SCLC) cells, and induces SCLC cell apoptosis by suppressing antiapoptotic proteins (such as Bcl-2 and MCL1) and upregulating proapoptotic protein Bim. Nitroxoline is found to downregulate MDM2 expression by inducing its proteasomal degradation, and thus upregulates p53 expression, which is a substrate protein of MDM2[2].

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

Cell Viability Assay[2]

Cell Line:	H446, H1882, H1417, and H1688 cells
Concentration:	2.5 μM, 5 μM, 10 μM, 20 μM
Incubation Time:	24 hours
Result:	Effectively inhibit cell survival of small-cell lung cancer (SCLC) cells.

Western Blot Analysis[2]

Cell Line:	H446, H1882, H1417 cells
Concentration:	5 μM, 10 μM, 20 μM
Incubation Time:	24 hours
Result:	Suppressed antiapoptotic proteins (such as Bcl-2 and MCL1) and upregulated proapoptotic protein Bim.

In Vivo

Nitroxoline (15-60mg/kg; orally gavage) results in significant inhibition of tumor growth in the C3H/He mice bladder cancer subcutaneous model[3].

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Animal Model:	C3H/He mice bladder injected with MBT-2 cells[3]
Dosage:	15 mg/kg or 60mg/kg
Administration:	Orally gavage; five times a week on days 1, 2, 4, 5, 7, 8, 10, and 11.
Result:	Resulted in significant inhibition of tumor growth.

REFERENCES

[1]. A Sobke, et al. The urinary antibiotic 5-nitro-8-hydroxyquinoline (Nitroxoline) reduces the formation and induces the dispersal of Pseudomonas aeruginosa biofilms by chelation of iron and zinc. Antimicrob Agents Chemother. 2012 Nov;56(11):6021-5.

[2]. Jin-Guo Yu, et al. Nitroxoline induces cell apoptosis by inducing MDM2 degradation in small-cell lung cancer. Kaohsiung J Med Sci. 2019 Apr;35(4):202-208.

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