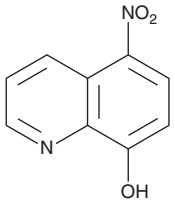
PRODUCT INFORMATION

Nitroxoline

Item No. 28391

CAS Registry No.:	4008-48-4
Formal Name:	5-nitro-8-quinolinol
Synonyms:	8-Hydroxy-5-nitroquinoline, 5-Nitro-8-hydroxyquinoline
MF:	$C_9H_6N_2O_3$
FW:	190.2
Purity:	≥95%
UV/Vis.:	λ_{max}: 240, 355 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Nitroxoline is supplied as a crystalline solid. A stock solution may be made by dissolving the nitroxoline in the solvent of choice, which should be purged with an inert gas. Nitroxoline is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of nitroxoline in these solvents is approximately 1, 30, and 25 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of nitroxoline can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of nitroxoline in PBS, pH 7.2, is approximately 0.5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Nitroxoline is an 8-hydroxyquinoline that has diverse biological activities, including antibacterial, antiproliferative, and bromodomain interaction-inhibiting properties.[1-4] Nitroxoline is active against the bacteria *E. coli*, *S. aureus*, *E. faecalis*, *K. pneumoniae*, and *P. mirabilis in vitro* (MIC_{90}s = 4, 4, 8, 8, and 8 mg/L, respectively).[1] It also inhibits biofilm formation of certain strains of multidrug-resistant (MDR) *A. baumannii* and *P. aeruginosa*, as well as methicillin-resistant *S. aureus* (MRSA) and *S. epidermidis* (MRSE) with minimum biofilm eradication concentration (MBEC) values of 46.9, 1,500, 188, and 125 µM, respectively.[2] Nitroxoline inhibits the growth of human U87 and U251 glioma, A549 lung, and PC3 prostate cancer cells (IC_{50}s = 50, 6, 38, and 23 µg/ml, respectively).[3] *In vivo*, it reduces tumor growth in a PTEN- and KRAS-driven glioma mouse model when administered at a dose of 80 mg/kg per day. Nitroxoline also inhibits the interaction between the first bromodomain of bromodomain-containing protein 4 (BRD4) with acetylated histone H4 with an IC_{50} value of 0.98 µM.[4]

References

1. Sobke, A., Makarewicz, O., Baier, M., *et al. Int. J. Antimicrob. Agents* **51(2),** 213-220 (2018).
2. Abouelhassan, Y., Yang, Q., Yousaf, H., *et al. Int. J. Antimicrob. Agents* **49(2),** 247-251 (2017).
3. Iazovic, J., Guo, L., Nakashima, J., *et al. Neuro. Oncol.* **17(1),** 53-62 (2015).
4. Jiang, H., Xing, J., Wang, C., *et al. Org. Biomol. Chem.* **15(44),** 9352-9361 (2017).

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