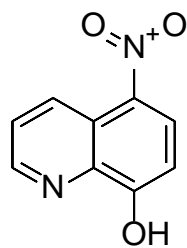


Product data sheet



MedKoo Cat#: 318374 Name: Nitroxoline CAS: 4008-48-4 Chemical Formula: C ₉ H ₆ N ₂ O ₃ Exact Mass: 190.0378 Molecular Weight: 190.1555		
Product supplied as:	Powder	
Purity (by HPLC):	≥ 98%	
Shipping conditions	Ambient temperature	
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

1. Product description:

Nitroxoline is an antibiotic that has been in use in Europe for about fifty years, and has proven to be very effective at combating biofilm infections. Nitroxoline was shown to cause a decrease in the biofilm density of *P. aeruginosa* infections, which would allow access to the infection by the immune system in vivo. It was shown that nitroxoline functions by chelating Fe²⁺ and Zn²⁺ ions from the biofilm matrix; when Fe²⁺ and Zn²⁺ were reintroduced into the system, biofilm formation was reconstituted. The activity of biofilm degradation is comparable to EDTA, but has a history of human use in clinical settings and therefore has a precedent with which to allow its use against “slimy” biofilm infections.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	25.0	131.47
DMSO	39.33	206.85
Ethanol	1.0	5.26
PBS (pH 7.2)	0.5	2.63

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	5.26 mL	26.29 mL	52.59 mL
5 mM	1.05 mL	5.26 mL	10.52 mL
10 mM	0.53 mL	2.63 mL	5.26 mL
50 mM	0.11 mL	0.53 mL	1.05 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Hoffmann AM, Wolke M, Rybníček J, Plum G, Fuchs F. Activity of the old antimicrobial nitroxoline against *Mycobacterium abscessus* complex isolates. *J Glob Antimicrob Resist*. 2023 Feb 24;33:1-4. doi: 10.1016/j.jgar.2023.02.010. Epub ahead of print. PMID: 36842457.
- Abouelhassan Y, Yang Q, Yousaf H, Nguyen MT, Rolfe M, Schultz GS, Huigens RW 3rd. Nitroxoline: a broad-spectrum biofilm-eradicating agent against pathogenic bacteria. *Int J Antimicrob Agents*. 2017 Feb;49(2):247-251. doi: 10.1016/j.ijantimicag.2016.10.017. Epub 2016 Dec 6. PMID: 28110918.

In vivo study

Product data sheet



1. Lin W, Sun J, Sadahira T, Xu N, Wada K, Liu C, Araki M, Xu A, Watanabe M, Nasu Y, Huang P. Discovery and Validation of Nitroxoline as a Novel STAT3 Inhibitor in Drug-resistant Urothelial Bladder Cancer. Int J Biol Sci. 2021 Jul 25;17(12):3255-3267. doi: 10.7150/ijbs.63125. PMID: 34421363; PMCID: PMC8375225.
2. Mirković B, Markelc B, Butinar M, Mitrović A, Sosič I, Gobec S, Vasiljeva O, Turk B, Čemažar M, Serša G, Kos J. Nitroxoline impairs tumor progression in vitro and in vivo by regulating cathepsin B activity. Oncotarget. 2015 Aug 7;6(22):19027-42. doi: 10.18632/oncotarget.3699. PMID: 25848918; PMCID: PMC4662473.

7. Bioactivity

Biological target:

Nitroxoline is an antibiotic.

In vitro activity

In this study, the effectiveness of nitroxoline to eradicate biofilms was determined using an in vitro [minimum biofilm eradication concentration (MBEC) = 46.9 μ M against *A. baumannii*] and ex vivo porcine skin model (2-3 log reduction in viable biofilm cells). Nitroxoline was also found to eradicate methicillin-resistant *S. aureus* (MRSA) persister cells in non-biofilm (stationary) cultures, whereas vancomycin and daptomycin were found to be inactive.

Reference: Int J Antimicrob Agents. 2017 Feb;49(2):247-251. <https://pubmed.ncbi.nlm.nih.gov/28110918/>

In vivo activity

LPB fibrosarcoma cells were implanted in C57Bl/6 mice and nitroxoline (40 mg/kg) was administered in their drinking water for the entire duration of experiment or for 15 days only. Nitroxoline (Fig. 5A) as well as CA-074 (Fig. 5B) increased the time required for LPB tumors to reach a volume of 40 mm³ (Fig. 5C and 5D) and caused a delay in tumor growth (Fig. 5E and 5F). An orthotopic mouse breast cancer model was also employed in which primary MMTV-PyMT cells were injected into the left inguinal mammary gland of FVB/N congenic recipient mice. Nitroxoline (40 mg/kg) treatment of these mice reduced the growth of induced tumors (Fig. 6A).

Reference: Oncotarget. 2015 Aug 7;6(22):19027-42. <https://pubmed.ncbi.nlm.nih.gov/25848918/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.