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## Product Data Sheet

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Product Name: 5-Nitro-1,10-phenanthroline

Cat. No.: GC68228

### Chemical Properties

Cas. No. 4199-88-6

Formula  $C_{12}H_7N_3O_2$  M.Wt 225.2

Solubility Storage 4°C, protect from light, stored under nitrogen

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure

### Background

5-Nitro-1,10-phenanthroline (5-NP), is a o-Phenanthroline derivative, as a mediator of **glucose oxidase (GOX)** with antituberculous activity. 5-Nitro-1,10-phenanthroline can be applied as redox mediators for oxidases and is suitable for the development of reagent-less biosensors and biofuel cells<sup>[1][1]</sup>.

5-Nitro-1,10-phenanthroline (25 μM; 24 h) kills naturally resistant intracellular bacteria by inducing autophagy in THP-1 macrophages<sup>[2]</sup>.

5-Nitro-1,10-phenanthroline (1x, 5x, 20x or 50x MIC, MIC=0.78 μM; 1 h) also modulates the host machinery to kill intracellular pathogens by inhibiting mycolic acid biosynthesis of Mtb<sup>[2]</sup>.

Cell Viability Assay<sup>[2]</sup>

Cell Line: Mtb H37Rv, *M. bovis* BCG and *M. bovis* BCG-5NP resistant strain

Concentration: 0-12.5 μM

**Caution: Product has not been fully validated for medical applications. For research use only.**

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Incubation  
Time:

24 hours

Result:

Inhibited pathogens with MIC<sub>99</sub> values of 0.78 μM (Mtb H37Rv), 0.78 μM (*M. bovis* BCG), and >12.5 μM (*M. bovis* BCG-5NP), respectively.

[1]. Oztekin Y, et al. 1,10-Phenanthroline derivatives as mediators for glucose oxidase. Biosens Bioelectron. 2010 Sep 15;26(1):267-70.

[2]. Kidwai S, et al. Dual Mechanism of Action of 5-Nitro-1,10-Phenanthroline against Mycobacterium tuberculosis. Antimicrob Agents Chemother. 2017 Oct 24;61(11):e00969-17.

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