HQNO

Cat. No.: HY-130055

CAS No.: 341-88-8

Molecular Formula: $C_{16}H_{21}NO_2$

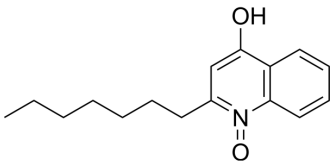
Molecular Weight: 259.34

Target: Mitochondrial Metabolism

Pathway: Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 5 mg/mL (19.28 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.8559 mL	19.2797 mL	38.5594 mL
	5 mM	0.7712 mL	3.8559 mL	7.7119 mL
	10 mM	0.3856 mL	1.9280 mL	3.8559 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 0.5 mg/mL (1.93 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.5 mg/mL (1.93 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

HQNO, secreted by P. aeruginosa, is a potent electron transport chain inhibitor with a K_d of 64 nM for complex III[1]. HQNO is a potent inhibitor of mitochondrial NDH-2 in many species[2].

IC_{50} & Target

NDH-2[2]

In Vitro

HQNO is a potent inhibitor of mitochondrial type II NADH:quinone oxidoreductase (NDH-2) in many species, including Yarrowia lipolytica, S. cerevisiae, Gluconobacter oxydans, T. gondii, P. falciparum, and S. aureus. HQNO targets the Q-site of NDH-2[2].

HQNO concentrations are varied from 0 to 100 μM and 0 to 300 μM for wild-type (WT) and I379E C. thermarum NDH-2 variant, respectively to determine IC_{50} values. WT NDH-2 has an IC_{50} value of 10.5±1.3 μM HQNO in the presence of 400 μM

Menadione (MD). In the presence of 50 μM MD, the IC_{50} value for HQNO decreases slightly to 7.3±1.2 μM and near complete inhibition (~15% residual activity) is observed with >50 μM HQNO. At 50 μM MD, HQNO inhibition is observed with an IC_{50} value of 54.3±1.2 μM[2].

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

CUSTOMER VALIDATION

- Int J Parasitol Drugs Drug Resist. 2023 Feb 4;21:74-80.

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REFERENCES

[1]. N J Jacobs, et al. Evidence for Involvement of the Electron Transport System at a Late Step of Anaerobic Microbial Heme Synthesis. Biochim Biophys Acta. 1977 Jan 6;459(1):141-4.

[2]. Jessica Petri, et al. Structure of the NDH-2 - HQNO Inhibited Complex Provides Molecular Insight Into Quinone-Binding Site Inhibitors. Biochim Biophys Acta Bioenerg. 2018 Jul;1859(7):482-490.

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