Pyridaben

Cat. No.: HY-B0817

CAS No.: 96489-71-3

Molecular Formula: $C_{19}H_{25}ClN_2OS$

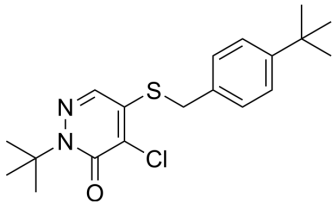
Molecular Weight: 364.93

Target: Parasite

Pathway: Anti-infection

Storage: 4°C, protect from light

* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (137.01 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.7403 mL	13.7013 mL	27.4025 mL
	5 mM	0.5481 mL	2.7403 mL	5.4805 mL
	10 mM	0.2740 mL	1.3701 mL	2.7403 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.85 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.85 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Pyridaben is a mitochondrial electron transport inhibitor (METI) acaricide that promotes the formation of damaging oxygen and nitrogen radicals. Pyridaben selectively inhibits complex I (NADH dehydrogenase) with an IC_{50} value of 2.4 nM (assay sites: rat liver and bovine heart mitochondria). Pyridaben also significantly inhibits rat mitochondrial mtNOS function[1][2].

IC_{50} & Target

Mite

In Vitro

Pyridaben (0-10 μM; 3 min) selectively inhibits complex I-III in rat brain submitochondrial particles[1].
Pyridaben (0-10 μM; 3 min) leads to marked decrease in respiratory control (IC50 = 1.7 μM) in a dose-dependent manner, in rat brain mitochondria (malate-glutamate as substrate)[1].
Pyridaben (0-10 μM; 3 min) produces a marked decrease in mtNOS functional activity, when malate-glutamate is used as substrate, but not when the substrate is succinate.[1].

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

Cell Viability Assay[1]

Cell Line:	Rat brain submitochondrial particles
Concentration:	0-10 μM
Incubation Time:	3 min
Result:	Led to a decrease of NADH-cytochrome reductase activity (complex I-III) and without modification of succinate-cytochrome c reductase activity (complex II-III) and of cytochrome oxidase activity (complex IV)

Cell Viability Assay[1]

Cell Line:	Rat brain mitochondria
Concentration:	0-10 μM
Incubation Time:	3 min
Result:	Showed a marked and dose-dependent decrease in respiratory control in the presence of malate-glutamate as substrate (IC_{50}=1.7 μM)

REFERENCES

[1]. Gomez C,et al. Pesticides and impairment of mitochondrial function in relation with the parkinsonian syndrome. Front Biosci. 2007 Jan 1;12:1079-93.

[2]. Namin HH, et al. Resistance to pyridaben in Canadian greenhouse populations of two-spotted spider mites, Tetranychus urticae (Koch). Pestic Biochem Physiol. 2020 Nov;170:104677.

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