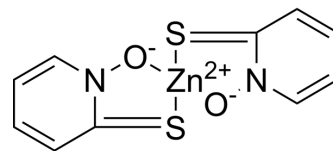


Zinc Pyrithione

Cat. No.:	HY-B0572
CAS No.:	13463-41-7
Molecular Formula:	C ₁₀ H ₈ N ₂ O ₂ S ₂ Zn
Molecular Weight:	317.69
Target:	Proton Pump; Bacterial; Fungal; Cuproptosis
Pathway:	Membrane Transporter/Ion Channel; Anti-infection
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 : 33.33 mg/mL (104.91 mM; Need ultrasonic)					
	H ₂ O : < 0.1 mg/mL (insoluble)					
	Preparing Stock Solutions	<div><div>Solvent</div><div>Concentration</div></div>	Mass	1 mg	5 mg	10 mg
		1 mM	3.1477 mL	15.7386 mL	31.4772 mL	
		5 mM	0.6295 mL	3.1477 mL	6.2954 mL	
	10 mM	0.3148 mL	1.5739 mL	3.1477 mL		
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: 10% DMSO >> 90% corn oil					
	Solubility: ≥ 2.5 mg/mL (7.87 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	<p>Zinc Pyrithione is an antifungal and antibacterial agent disrupting membrane transport by blocking the proton pump^[1]. Zinc Pyrithione is also a copper ionophore that delivers copper into cells and is a useful tool for studying cuproptosis^[2].</p>
In Vitro	<p>Zinc pyrithione is considered as a coordination complex of zinc. The pyrithione ligands, which are formally monoanions, are chelated to Zn²⁺ via oxygen and sulfur centers. In the crystalline state, zinc pyrithione exists as a centrosymmetric dimer, where each zinc is bonded to two sulfur and three oxygen centers. In solution, however, the dimers dissociate via scission of one Zn-O bond. Zinc pyrithione, which is a dimer but is probably biologically active as a monomer, induces plasma membrane depolarization with half-maximal effect (K_{1/2}) of about 0.3 mM^[1].</p> <p>Zinc Pyrithione (10 nM-10 μM; 72 hours) significantly induces cell death in AAVS1 cells^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

CUSTOMER VALIDATION

- Ecotoxicol Environ Saf. 2022 Mar 9;234:113393.
- Int J Mol Sci. 2023 Jan 14;24(2):1667.
- J Neurochem. 2021 Oct 26.
- bioRxiv. 2023 Oct 15.

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REFERENCES

- [1]. Peter Tsvetkov, et al. Copper induces cell death by targeting lipoylated TCA cycle proteins. Science. 2022 Mar 18;375(6586):1254-1261.
- [2]. Ermolayeva, E. and D. Sanders, Mechanism of pyriithione-induced membrane depolarization in Neurospora crassa. Appl Environ Microbiol, 1995. 61(9): p. 3385-90.
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Caution: Product has not been fully validated for medical applications. For research use only.

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