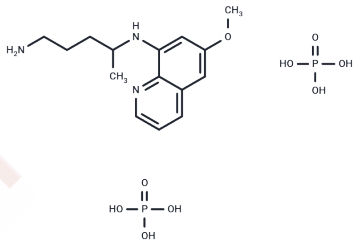
Data Sheet (Cat.No.T0850)

TargetMol

Primaquine diphosphate

Chemical Properties



CAS No. : 63-45-6

Formula: C15H21N3O·2H3PO4

Molecular Weight: 455.34

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Primaquine diphosphate is the phosphate salt form of primaquine, a synthetic, 8-aminoquinoline derivative with antimalarial properties. Although its mechanism of action is unclear, primaquine bind to and alter the properties of protozoal DNA. This agent eliminates tissue (exo-erythrocytic) malarial infection, preventing the development of the erythrocytic forms of the parasite which are responsible for relapses in Plasmodium vivax and ovale malaria. Primaquine is active against late hepatic stages (hypnozoites, schizonts).
Targets(IC50)	Antibiotic,Parasite
In vivo	Primaquine effectively counters all exoerythrocytic forms of parasites and is used in conjunction with other antimalarial drugs to treat vivax and ovale malaria. It remains an efficacious malaria-blocking agent, exhibiting notable activity against the gametocytes of all human malaria, including multidrug-resistant strains of P. falciparum. The specific mechanism by which Primaquine eliminates P. falciparum and gametocytes is unclear, but studies suggest it involves disruptions to the parasite's mitochondrial metabolism, impairing coenzyme Q's role as an electron carrier in the respiratory chain, and potential generation of highly reactive metabolites leading to increased oxidative potential. Primaquine can block calcium-release-activated channels in rat megakaryocytes and may also act as an inhibitor of vesicular transport. It inhibits protein transport (IC50: 50 μM) and vesicle budding in donor cell membranes. Primaquine significantly suppresses the recycling of phagocytosed proteins to the plasma membrane and inhibits potassium channel currents by blocking muscarinic acetylcholine receptors. It also inhibits human erythrocyte membrane acetylcholinesterase (IC33: 30 μM) and affects the sodium channels in isolated rat ventricular muscle and myocytes.

Solubility Information

Solubility	DMSO: 60 mg/mL (131.77 mM),Sonication is recommended. Ethanol: < 1 mg/mL (insoluble or slightly soluble), H2O: 83 mg/mL (182.28 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1962 mL	10.9808 mL	21.9616 mL
5 mM	0.4392 mL	2.1962 mL	4.3923 mL
10 mM	0.2196 mL	1.0981 mL	2.1962 mL
50 mM	0.0439 mL	0.2196 mL	0.4392 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Vale N, et al. Eur J Med Chem, 2009, 44(3), 937-953.
Bowden G D, Land K M, O'Connor R M, et al. High-throughput screen of drug repurposing library identifies inhibitors of Sarcocystis neurona growth. International Journal for Parasitology: Drugs and Drug Resistance. 2018 Apr；8(1): 137-144
Ding L, Chen X, Zhang W, et al.Canagliflozin primes antitumor immunity by triggering PD-L1 degradation in endocytic recycling.The Journal of Clinical Investigation.2023, 133(1).
Bowden G D, Land K M, O'Connor R M, et al. High-throughput screen of drug repurposing library identifies inhibitors of Sarcocystis neurona growth[J]. International Journal for Parasitology: Drugs and Drug Resistance. 2018 Apr；8(1): 137-144.