Primaquine diphosphate

Cat. No.: HY-12651

CAS No.: 63-45-6

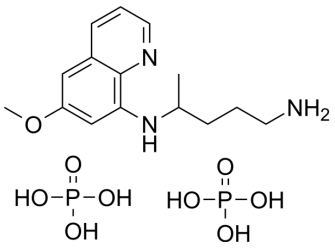
Molecular Formula: $C_{15}H_{27}N_3O_9P_2$

Molecular Weight: 455.34

Target: Parasite

Pathway: Anti-infection

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 250 mg/mL (549.04 mM; Need ultrasonic)
H_2O : 25 mg/mL (54.90 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
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

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (109.81 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (4.57 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.57 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.57 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Primaquine diphosphate is a potent antimalaria agent and a potent gametocytocide in falciparum malaria. Primaquine diphosphate prevents relapse in vivax and ovale malaria[1].

IC_{50} & Target

Plasmodium

In Vitro

Primaquine diphosphate significantly decreases the cell proliferation of live breast cancer cells, and shows no inhibitory

effect on the proliferation of MCF-7 (ER^+) and MDA-MB-453 (HER_2+) cells. Primaquine diphosphate inhibits the growth, migration, and colony formation of breast cancer cells in vitro[3].

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

Cell Viability Assay[3]

Cell Line:	MDA-MB-231, HCC1937 cells, MCF-7, and MDA-MB-453 cells
Concentration:	5 μM, 10 μM, 20 μM, 40 μM, 80 μM, 100 μM, 120 μM, and 150 μM
Incubation Time:	24 hours
Result:	Decreases breast cancer cell viability.

In Vivo

Primaquine (5-25 mg/kg; p.o; daily; for 3 days) diphosphate demonstrates no bioluminescence liver signal and no blood stage parasitaemia[2].

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

Animal Model:	Male 6-week-old C57BL/6 albino mice with sporozoite inoculation[2]
Dosage:	5 mg/kg, 10 mg/kg, 15 mg/kg, 20 mg/kg, and 25 mg/kg
Administration:	p.o; daily; for 3 days
Result:	No blood stage parasitaemia was observed.

CUSTOMER VALIDATION

- Advanced Therapeutics. 05 October 2021.
- Ann Transl Med. 2021 Feb;9(3):194.

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REFERENCES

[1]. Qigui Li, et al. Assessment of the prophylactic activity and pharmacokinetic profile of oral tafenoquine compared to primaquine for inhibition of liver stage malaria infections. Malar J. 2014 Apr 14:13:141.

[2]. Ji-Hyang Kim, et al. Primaquine Inhibits the Endosomal Trafficking and Nuclear Localization of EGFR and Induces the Apoptosis of Breast Cancer Cells by Nuclear EGFR/Stat3-Mediated c-Myc Downregulation. Int J Mol Sci. 2021 Nov 30;22(23):12961.

[3]. Ashley EA, et al. Primaquine: the risks and the benefits. Malar J. 2014 Nov 3;13:418.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA