Pyronaridine tetraphosphate

Cat. No.: HY-14749A

CAS No.: 76748-86-2

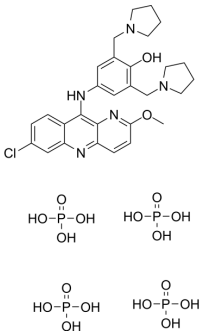
Molecular Formula: $C_{29}H_{44}ClN_5O_{18}P_4$

Molecular Weight: 910.03

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

H_2O : 25 mg/mL (27.47 mM; ultrasonic and warming and heat to 60°C)
DMSO : 12.5 mg/mL (13.74 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.0989 mL	5.4943 mL	10.9886 mL
	5 mM	0.2198 mL	1.0989 mL	2.1977 mL
	10 mM	0.1099 mL	0.5494 mL	1.0989 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 (54.94 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (2.75 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (2.75 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Pyronaridine tetraphosphate is an orally active Mannich base anti-malarial agent. Pyronaridine tetraphosphate is active against P. falciparum and Echinococcus granulosus infection[1][2].

IC_{50} & Target

Plasmodium

In Vitro

Pyronaridine tetraphosphate (24 h) shows anti-P. falciparum activity with an IC_{50} value of 1.53-3.94 nM[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	P. falciparum: 3D7, K1, VS1, FCB, TM90C2a, FCR3
Concentration:	0-7 nM approximately
Incubation Time:	24 h
Result:	Exhibited anti-P. falciparum activity with Mean IC_{50} values of 2.31 nM, 3.94 nM, 1.63 nM, 1.53 nM, 2.51 nM, 2.21 nM repectively.

In Vivo

Pyronaridine (57 mg/kg, oral administration, q.d. for 30 days) tetraphosphate reduces the parasitic burden in the Echinococcus granulosus-infected mice[2].
Pyronaridine (57 mg/kg, intraperitoneal injection, q.d. for 3 days) tetraphosphate reduces the parasitic burden in secondarily infected (cysts) mice[2].
Pyronaridine (57 mg/kg, intraperitoneal injection, for a single dose) tetraphosphate exhibits a higher exposure in the liver than in the plasma in male ICR mice[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Echinococcus granulosus-infected mice model[2]
Dosage:	57 mg/kg
Administration:	Oral administration, q.d. for 30 days
Result:	Reduced 42.4% of parasite wet weight and killed 90.7% of secondary infection (cysts) of E. granulosus ss.

CUSTOMER VALIDATION

- Cell Rep. 2021 Apr 6;35(1):108959.
- Mbio. 2023 Aug 15;e0158723.

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REFERENCES

[1]. Jun Li, et al. Old drug repurposing for neglected disease: Pyronaridine as a promising candidate for the treatment of Echinococcus granulosus infections. EBioMedicine. 2020 Apr;54:102711.

[2]. Vivas L, et al. Anti-malarial efficacy of pyronaridine and artesunate in combination in vitro and in vivo. Acta Trop. 2008 Mar;105(3):222-8.

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