Pyrimethamine

Cat. No.: HY-18062

CAS No.: 58-14-0

Molecular Formula: $C_{12}H_{13}ClN_4$

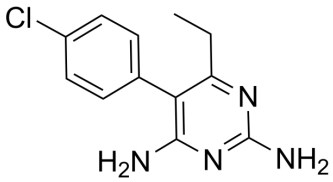
Molecular Weight: 248.71

Target: Antifolate; Parasite

Pathway: Cell Cycle/DNA Damage; Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 20 mg/mL (80.41 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	4.0207 mL	20.1037 mL	40.2075 mL
	5 mM	0.8041 mL	4.0207 mL	8.0415 mL
	10 mM	0.4021 mL	2.0104 mL	4.0207 mL

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

In Vivo

1. Add each solvent one by one: 50% PEG300 >> 50% PBS
   Solubility: 25 mg/mL (100.52 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (10.05 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (10.05 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Pyrimethamine (Pirimecidan) is a potent, orally active dihydrofolate reductase (DHFR) inhibitor. Pyrimethamine is an antimalarial agent. Pyrimethamine affects the nucleoprotein metabolism of malarial parasites by interference in the folic–folinic acid systems and affects cell division by inhibiting the conversion of dihydrofolate to tetrahydrofolate[1][2].

In Vitro

Pyrimethamine (Pirimecidan; 4 nM-4 μM; 24 h; LLC-MK2 cells with T. gondii) combination of Fluconazole (FLZ) (HY-B0101) inhibits T. gondii activity with IC_{50} values of 0.23, 0.19, 0.23, 0.34, 0.14, and 0.19 μM for FLZ concentration at 0, 0.05, 0.1, 0.5, 1.0, and 3.0 μM, respectively[1].

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

Cell Viability Assay[1]

Cell Line:	LLC-MK2 cells with T. gondii
Concentration:	4 nM-4 μM
Incubation Time:	24 hours
Result:	Inhibited T. gondii activity and decreased parasite proliferation index.

In Vivo

Pyrimethamine (Pirimecidan; 1 mg/kg; i.g.; daily, for 10 d; female CF1 mice with T. gondii xenograft) combination of Fluconazole (FLZ) (HY-B0101) and Sulfadiazine (HY-B0273) increases protection from death[1].

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

Animal Model:	Female CF1 mice (18-22 g; 4-6 week of age) with T. gondii xenograft[1]
Dosage:	Oral gavage; daily, for 10 days
Administration:	1 mg/kg; 10 mg/kg (Fluconazole (HY-B0101)), 40 mg/kg (Sulfadiazine (HY-B0273))
Result:	Increased mouse survival compared to treatment with SDZ/PYR alone.

CUSTOMER VALIDATION

- Int J Antimicrob Agents. 2019 Dec;54(6):814-819.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.
- PLoS Negl Trop Dis. 2019 Aug 20;13(8):e0007681.
- Pathog Dis. 2022 Oct 31;ftac043.
- Research Square Preprint. 2022 Jun.

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REFERENCES

[1]. Aikawa M, et, al. Studies on nuclear division of a malarial parasite under pyrimethamine treatment. J Cell Biol. 1968 Dec;39(3):749-54.

[2]. Martins-Duarte ÉS, et, al. Toxoplasma gondii: the effect of fluconazole combined with sulfadiazine and pyrimethamine against acute toxoplasmosis in murine model. Exp Parasitol. 2013 Mar;133(3):294-9.

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