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Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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Dipyrithione

Cat. No.: HY-N8432

CAS No.: 3696-28-4

Molecular Formula: $C_{10}H_8N_2O_2S_2$

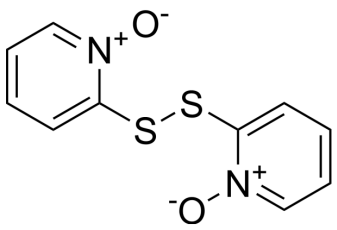
Molecular Weight: 252.31

Target: Apoptosis; Bacterial; Fungal

Pathway: Apoptosis; 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 : 10 mg/mL (39.63 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.9634 mL	19.8169 mL	39.6338 mL
	5 mM	0.7927 mL	3.9634 mL	7.9268 mL
	10 mM	0.3963 mL	1.9817 mL	3.9634 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1 mg/mL (3.96 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1 mg/mL (3.96 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Dipyrithione is a potent antimicrobial agent. Dipyrithione shows antifungal activity and antiproliferative activity. Dipyrithione induces apoptosis and cycle arrest at G1 phase. Dipyrithione shows anti-inflammatory activity in vivo. Dipyrithione shows anti-tumor activity. Dipyrithione has the potential for the research of dermatophytosis[1][2][3].

In Vitro

Dipyrithione (20?μg/mL) shows antifungal activity with MIC values of 6.03 μM for Trichophyton rubrum[1].
Dipyrithione (72 h) shows cytotoxic activity against 293?T cells with an IC_{50} value of 0.22 μM[1].
Dipyrithione (1-5 μM; 8.5 h) inhibits LPS (100 ng/ml)-induced up-regulation of iNOS and COX-2 in RAW264.7 cells in a dose-dependent manner[2].
Dipyrithione (1 μM; 8.5 h) suppresses LPS-induced increase of iNOS but not COX-2 mRNA level, inhibits LPS-increased NO production[2].

Dipyrithione (3 μM; 2, 5 h) decreases phosphorylation of STAT1 induced by LPS and does not influence LPS-induced MAPK and NF-κB activation in RAW 246.7 cells[2].
Dipyrithione (0-5 μg/mL; 48 h) shows antiproliferative activity for KB, 231, U937 and K562 cells in a dose dependent manner [3].
Dipyrithione (2.5 μg/ml) induces apoptosis and cycle arrest at G1 phase[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[2]

Cell Line:	RAW264.7 cells
Concentration:	1-5 μM
Incubation Time:	8.5 h
Result:	Inhibited the expression of LPS (100 ng/ml)-induced up-regulation of iNOS and COX-2 in a dose-dependent manner.

Cell Proliferation Assay[2]

Cell Line:	KB, 231, U937, K562 cells
Concentration:	2.5 μg/ml
Incubation Time:	24 h
Result:	Induced cell cycle arrest at G1 phase with induced p21 accumulation, CyclinD1 and CyclinE1 expressions were downregulated.

Apoptosis Analysis[3]

Cell Line:	KB, 231, U937, K562 cells
Concentration:	2.5 μg/ml
Incubation Time:	36 h
Result:	Induced apoptosis by induced cleavage of caspase-9, caspase-3 and PARP.

Western Blot Analysis[3]

Cell Line:	RAW264.7 cells
Concentration:	1-5 μM
Incubation Time:	8.5 h
Result:	Inhibited the expression of LPS (100 ng/ml)-induced up-regulation of iNOS and COX-2 in a dose-dependent manner.

In Vivo

Dipyrithione (0.2 mg/cm^2; externally once daily for 10 days) shows great anti-dermatophyte activity effects in guinea pig[1].
Dipyrithione (1, 2.5, 5 mg/kg; i.p.) shows anti-inflammatory activity in mouse[2].Dipyrithione (5 mg/kg; i.p.; daily for 10 days) shows anti-tumor acyivity in mouse[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Guinea pig (infected with Trichophyton rubrum)[1]
Dosage:	0.2 mg/cm^2

Administration:	Externally once daily for 10 days
Result:	Showed normal hair growth, with no scaly skin.

Animal Model:	18-22g male ICR mice[2]
Dosage:	1, 2.5, 5 mg/kg
Administration:	I.p.
Result:	Raised the survival rate from 10% to 30%, 60% and 90%, respectively.

Animal Model:	6 weeks, 18-20 g male ICR mice (hepatoma 22 (H22) cells)[3]
Dosage:	2.5 mg/kg
Administration:	I.p.; daily for 10 days
Result:	Inhibited the growth of tumor.

REFERENCES

[1]. Song X, et al. In vivo antifungal activity of dipyrithione against Trichophyton rubrum on guinea pig dermatophytosis models. Biomed Pharmacother. 2018 Dec;108:558-564.

[2]. Liu Z, et al. Dipyrithione inhibits lipopolysaccharide-induced iNOS and COX-2 up-regulation in macrophages and protects against endotoxic shock in mice. FEBS Lett. 2008 May 28;582(12):1643-50.

[3]. Fan Y, et al. Dipyrithione induces cell-cycle arrest and apoptosis in four cancer cell lines in vitro and inhibits tumor growth in a mouse model. BMC Pharmacol Toxicol. 2013 Oct 21;14:54.

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