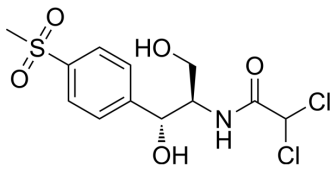
Thiamphenicol

Cat. No.:	HY-B0479
CAS No.:	15318-45-3
Molecular Formula:	$C_{12}H_{15}Cl_2NO_5S$
Molecular Weight:	356.22
Target:	Bacterial; Antibiotic; Beta-lactamase
Pathway:	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 : 100 mg/mL (280.73 mM; Need ultrasonic)
H_2O : 2 mg/mL (5.61 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.8073 mL	14.0363 mL	28.0725 mL
5 mM	0.5615 mL	2.8073 mL	5.6145 mL
10 mM	0.2807 mL	1.4036 mL	2.8073 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: ≥ 2.5 mg/mL (7.02 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.02 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.02 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Thiamphenicol (Thiophenicol), a methyl-sulfonyl derivative of Chloramphenicol, is a broad-spectrum antimicrobial antibiotic. Thiamphenicol acts by binding to the 50S ribosomal subunit, leading to inhibition of protein synthesis and bacteriostatic effect (against Gram-negative, Gram-positive aerobic and anaerobic bacteria)[1][2].

In Vitro

Thiamphenicol shows a significant post-antibiotic effect (PAE) (0.33 to 2.9h) on all pathogens studied (S. pneumoniae, S. aureus and Escherichia coli) and a powerful bactericidal effect against β-lactamase-positive and -negative H. influenzae.

	Thiamphenicol MICs for the microorganisms analyzed are: 32 mg/L (S. aureus and E. coli), 2 mg/L (S. pneumoniae) and 0.25 mg/L (H. influenzae). Thiamphenicol shows a good in vitro activity against difficult-to-treat multiply resistant pathogens[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	The pharmacokinetics of Thiamphenicol (30 mg/kg) after single intravenous (IV) and oral (PO) administration is investigated in Mulard ducks. After IV administration, for Thiamphenicol, the mean residence time is 2.83 hours, the general half-life is 1.96 hours, the clearance is 0.04 L/hr/kg. Pharmacokinetics after PO administration is very similar for IV administration. Thiamphenicol shows rapid absorption and bioavailability of more than 70%[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. A Marchese, et al. In vitro activity of thiamphenicol against multiresistant Streptococcus pneumoniae, Haemophilus influenzae and Staphylococcus aureus in Italy. J Chemother. 2002 Dec;14(6):554-61.

[2]. Marta Tikhomirov, et al. Pharmacokinetics of florfenicol and thiamphenicol in ducks. J Vet Pharmacol Ther. 2019 Jan;42(1):116-120.

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