Tylosin

Cat. No.: HY-B0519A

CAS No.: 1401-69-0

Molecular Formula: $C_{46}H_{77}NO_{17}$

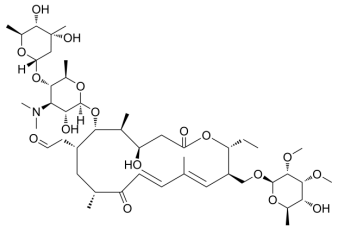
Molecular Weight: 916.1

Target: Bacterial; Antibiotic

Pathway: 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 : ≥ 100 mg/mL (109.16 mM)

H_2O : < 0.1 mg/mL (insoluble)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	1.0916 mL	5.4579 mL	10.9158 mL
5 mM	0.2183 mL	1.0916 mL	2.1832 mL
10 mM	0.1092 mL	0.5458 mL	1.0916 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 (2.73 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (2.73 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (2.73 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Tylosin (Tylosin A) is a macrolide antibiotic found naturally as a fermentation product of Streptomyces fradiae. Tylosin exerts potent antimicrobial activity against Gram-positive bacteria. Tylosin is widely used as a feed additive for promoting animal growth. Tylosin is used for veterinary purposes against bacterial dysentery and respiratory diseases in poultry, pigs and cattle[1][2][3].

IC_{50} & Target	Macrolide
In Vitro	Tylosin exerts antibacterial effects by binding to 23S rRNA of the bacterial ribosomal 50S subunit [1]. Tylosin also prevents growth of Gram-negative strains, with MICs of 64 μg/mL, 32 μg/mL, 512 μg/mL and 1 μg/mL for M. haemolytica 11935, P. multocida 4407, E. coli ATCC 25922 and E. coli AS19rlmA^{I}, respectively[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Tylosin (10-500 mg/kg; s.c.) generally suppresses the elevated TNF-α and IL-1β levels and increases the IL-10 levels in the Lipopolysaccharide (LPS) -treated animals[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Balb/C mice (2-3 months old, 20-25 g)[4]
Dosage:	10 mg/kg, 100 mg/kg, 500 mg/kg
Administration:	Subcutaneous injection
Result:	Reduced the elevated TNF-α and IL-1β in LPS (250 μg)-treated mice but increased their IL-10 levels.

CUSTOMER VALIDATION

- Chemosphere. 2019 Jun;225:378-387.

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REFERENCES

[1]. Mingfu Liu, et al. Resistance to the macrolide antibiotic tylosin is conferred by single methylations at 23S rRNA nucleotides G748 and A2058 acting in synergy. Proc Natl Acad Sci U S A. 2002 Nov 12; 99(23): 14658-14663.

[2]. Carlo Pinna, et al. In Vitro Evaluation of the Effects of Tylosin on the Composition and Metabolism of Canine Fecal Microbiota. Animals (Basel). 2020 Jan; 10(1): 98.

[3]. Niels Møller Andersen, et al. Inhibition of Protein Synthesis on the Ribosome by Tildipirosin Compared with Other Veterinary Macrolides. Antimicrob Agents Chemother. 2012 Nov; 56(11): 6033-6036.

[4]. Ayse Er, et al. Effects of tylosin on serum cytokine levels in healthy and lipopolysaccharide-treated mice. Acta Vet Hung. 2010 Mar;58(1):75-81.

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