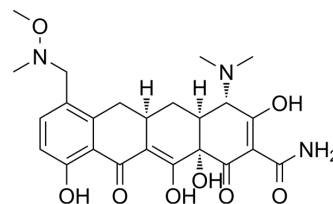


Sarecycline

Cat. No.:	HY-16770
CAS No.:	1035654-66-0
Molecular Formula:	C ₂₄ H ₂₉ N ₃ O ₈
Molecular Weight:	487.5
Target:	Antibiotic; Bacterial; DNA/RNA Synthesis
Pathway:	Anti-infection; Cell Cycle/DNA Damage
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



SOLVENT & SOLUBILITY

In Vitro	DMSO : 100 mg/mL (205.13 mM; Need ultrasonic)						
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg	
				1 mM	2.0513 mL	10.2564 mL	20.5128 mL
				5 mM	0.4103 mL	2.0513 mL	4.1026 mL
				10 mM	0.2051 mL	1.0256 mL	2.0513 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 (5.13 mM); Clear solution						
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (5.13 mM); Clear solution						

BIOLOGICAL ACTIVITY

Description	Sarecycline is an orally effective narrow-spectrum tetracycline derivative antibiotic. Sarecycline has anti-inflammatory activity. Sarecycline inhibits the activity of Gram-positive bacteria and several types of keratobacterium acnes. Sarecycline interferes with tRNA accommodation and tethers mRNA to the 70S ribosome. Sarecycline can be used to study moderate to severe acne ^{[1][2][3][4][5][6]} .
In Vitro	Sarecycline inhibits 55 clinical isolates of <i>C. acnes</i> , and the MIC values for Sarecycline ranged from 0.5 to 16 µg/ml; the MIC50 was 0.5 µg/ml, and the MIC90 was 4 µg/ml ^[1] . Sarecycline exhibits activity against the macrolide-resistant organisms ^[1] . Sarecycline hydrochloride exhibits minimal activity against enteric aerobic Gram-negative bacteria ^[2] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Sarecycline hydrochloride (0.33-9 mg/kg; i.v.) show potent activity against *S. aureus* in a murine neutropenic thigh infection model^[1].

Sarecycline can inhibit *S. aureus* (PD₅₀=0.25 mg/kg), but has no significant effect on *E. coli* even at the highest dose (>40 mg/kg) in CD-1 mice model of systemic (intraperitoneal) infection^[6].

Sarecycline (1-150mg/kg; Intraperitoneal injection; Single dose) shows anti-inflammatory activity in Sprague Dawley rats model^[6].

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

Animal Model:	Carrageenan-induced footpad edema male Sprague Dawley rats model ^[6]
Dosage:	1 mg/kg, 5 mg/kg, 10 mg/kg, 25 mg/kg, 50 mg/kg, 75 mg/kg, 100 mg/kg, 150 mg/kg
Administration:	Intraperitoneal injection (i.p.); Single dose. Before a subplantar injection of sterile 1 mg/0.1 mL carrageenan solution in the right hind paw.
Result:	Reduced inflammation to 55.7% and 53.1%, respectively, at doses of 75 mg/kg and 100 mg/kg compared to baseline.

Animal Model:	Carrageenan-induced footpad edema male Sprague Dawley rats model ^[6]
Dosage:	0.33, 1, 3, or 9 mg/kg
Administration:	Intravenously
Result:	Achieved a 2-log ₁₀ reduction in the bacterial burden in the thigh at a dose comparable to that of doxycycline, with ED ₅₀ s of 8.23 and 8.32 mg/kg, respectively.

Caution: Product has not been fully validated for medical applications. For research use only.

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CUSTOMER VALIDATION

- Pharmaceutics. 2021, 13(12), 2085.
- Microbiol Spectr. 2023 May 4;e0071823.
- Microbiol Spectr. 2022 Dec 8;e0323822.
- Clin Exp Pharmacol Physiol. 2023 Apr 22.

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- [2]. Moore AY, et al. Sarecycline: a narrow spectrum tetracycline for the treatment of moderate-to-severe acne vulgaris. Future Microbiol. 2019 Sep;14(14):1235-1242.
- [3]. Batool Z, et al. Sarecycline interferes with tRNA accommodation and tethers mRNA to the 70S ribosome. Proc Natl Acad Sci U S A. 2020 Aug 25;117(34):20530-20537.
- [4]. Butler MS, et al. Antibiotics in the clinical pipeline in 2013. J Antibiot (Tokyo). 2013 Oct;66(10):571-91.
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- [6]. Bunick CG, et al. Antibacterial Mechanisms and Efficacy of Sarecycline in Animal Models of Infection and Inflammation. Antibiotics (Basel). 2021 Apr 15;10(4):439.