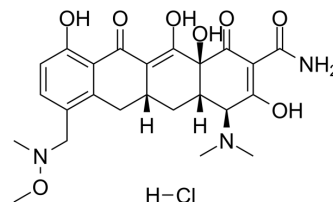


Sarecycline hydrochloride

Cat. No.:	HY-13858A
CAS No.:	1035979-44-2
Molecular Formula:	C ₂₄ H ₃₀ ClN ₃ O ₈
Molecular Weight:	523.96
Target:	Antibiotic; Bacterial; DNA/RNA Synthesis
Pathway:	Anti-infection; Cell Cycle/DNA Damage
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (190.85 mM; Need ultrasonic)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	1.9085 mL	9.5427 mL	19.0854 mL
	5 mM	0.3817 mL	1.9085 mL	3.8171 mL
	10 mM	0.1909 mL	0.9543 mL	1.9085 mL

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

BIOLOGICAL ACTIVITY

Description

Sarecycline hydrochloride is an orally active narrow-spectrum tetracycline derivative antibiotic. Sarecycline hydrochloride has anti-inflammatory activity. Sarecycline hydrochloride inhibits the activity of Gram-positive bacteria and several types of keratobacterium acnes. Sarecycline hydrochloride interferes with tRNA accommodation and tethers mRNA to the 70S ribosome. Sarecycline hydrochloride can be used to study moderate to severe acne^{[1][2][3][4][5][6]}.

IC₅₀ & Target

Tetracycline

In Vitro

Sarecycline inhibits 55 clinical isolates of *C. acnes*, 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:	Female SD-1 mice (A murine neutropenic thigh wound infection model) ^[1]
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.
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.

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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- [1]. Butler MS, et al. Antibiotics in the clinical pipeline in 2013. J Antibiot (Tokyo). 2013 Oct;66(10):571-91.
- [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]. 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.
- [4]. Zhanel G, Critchley I, Lin LY, Alvandi N. Microbiological Profile of Sarecycline, a Novel Targeted Spectrum Tetracycline for the Treatment of Acne Vulgaris. Antimicrob Agents Chemother. 2018;63(1):e01297-18. Published 2018 Dec 21.
- [5]. Moore AY, Charles JEM, Moore S. Sarecycline: a narrow spectrum tetracycline for the treatment of moderate-to-severe acne vulgaris. Future Microbiol. 2019;14(14):1235-1242.
- [6]. Batool Z, et al. Sarecycline interferes with tRNA accommodation and tethers mRNA to the 70S ribosome. Proc Natl Acad Sci U S A. 2020;117(34):20530-20537.

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

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