Omadacycline tosylate

Cat. No.: HY-14865B

CAS No.: 1075240-43-5

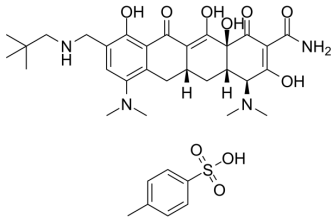
Molecular Formula: $C_{36}H_{48}N_4O_{10}S$

Molecular Weight: 728.85

Target: Bacterial; Antibiotic

Pathway: Anti-infection

Storage: 4°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 12.5 mg/mL (17.15 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3720 mL	6.8601 mL	13.7202 mL
	5 mM	0.2744 mL	1.3720 mL	2.7440 mL
	10 mM	0.1372 mL	0.6860 mL	1.3720 mL

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

In Vivo

1. Add each solvent one by one: PBS
Solubility: 50 mg/mL (68.60 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Omadacycline (PTK 0796) tosylate, a first-in-class orally active aminomethylcycline antibacterial, is a member of the tetracycline class of antibiotics. Omadacycline tosylate acts through the inhibition of bacterial protein synthesis by binding to the 30S ribosomal subunit. Omadacycline tosylate possesses broad-spectrum antibacterial activity against aerobic and anaerobic Gram-positive and Gram-negative bacteria, as well as atypical bacteria. Omadacycline tosylate can be used for the research of acute bacterial skin and skin-structure infections, community-acquired pneumonia, and urinary tract infections[1][2][3][4].

IC_{50} & Target

Tetracycline

In Vitro

Omadacycline displays activity against methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant Enterococcus (VRE), beta-hemolytic streptococci, penicillin-resistant Streptococcus pneumonia (PRSP) and Haemophilus influenzae (H. influenzae), with MIC_{90}s of 1.0, 0.25, 0.5, 0.25 and 2.0 μg/mL respectively[2].
Omadacycline is active against strains expressing tetracycline and other antibiotics resistance by ribosomal protection and

	active tetracycline efflux[2]. Omadacycline (10 μM) inhibits the ligand binding activity of muscarinic acetylcholine receptor (M2) by 82%[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Omadacycline (0.11-18 mg/kg; a single i.v.) exhibits efficacy against Streptococcus pneumonia, Escherichia coli, and Staphylococcus aureus in mice systemic infection model, with ED_{50}s ranging from 0.30 mg/kg to 3.39 mg/kg[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Microbiol. 2023 Mar;8(3):410-423.
- Nat Struct Mol Biol. 2023 Aug 7.
- PLoS Biol. 2022 Sep 28;20(9):e3001808.
- J Clin Microbiol. 2020 Jan 28;58(2):e01603-19.
- Virulence. 2022 Dec;13(1):77-88.

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REFERENCES

[1]. Tanaka SK, et al. In Vitro and In Vivo Assessments of Cardiovascular Effects with Omadacycline. Antimicrob Agents Chemother. 2016 Aug 22;60(9):5247-53.

[2]. Durães F, et, al. Omadacycline: A Newly Approved Antibacterial from the Class of Tetracyclines. Pharmaceuticals (Basel). 2019 Apr 21;12(2):63.

[3]. Macone AB, et, al. In vitro and in vivo antibacterial activities of omadacycline, a novel aminomethylcycline. Antimicrob Agents Chemother. 2014;58(2):1127-35.

[4]. Zhanel GG, et, al. Omadacycline: A Novel Oral and Intravenous Aminomethylcycline Antibiotic Agent. Drugs. 2020 Feb;80(3):285-313.

[5]. Markham A, et, al. Omadacycline: First Global Approval. Drugs. 2018 Dec;78(18):1931-1937.

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