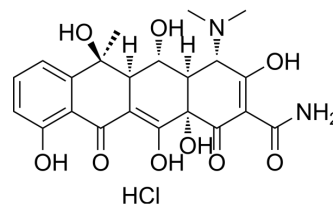


## Oxytetracycline hydrochloride

<b>Cat. No.:</b>	HY-B0275A
<b>CAS No.:</b>	2058-46-0
<b>Molecular Formula:</b>	C <sub>22</sub> H <sub>25</sub> ClN <sub>2</sub> O <sub>9</sub>
<b>Molecular Weight:</b>	496.89
<b>Target:</b>	Bacterial; HSV; Antibiotic; Endogenous Metabolite
<b>Pathway:</b>	Anti-infection; Metabolic Enzyme/Protease
<b>Storage:</b>	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 500 mg/mL (1006.26 mM; Need ultrasonic)					
	H <sub>2</sub> O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)					
	<b>Preparing Stock Solutions</b>	<b>Solvent</b>	<b>Mass</b>	<b>1 mg</b>	<b>5 mg</b>	<b>10 mg</b>
		<b>Concentration</b>				
		<b>1 mM</b>		2.0125 mL	10.0626 mL	20.1252 mL
<b>5 mM</b>			0.4025 mL	2.0125 mL	4.0250 mL	
	<b>10 mM</b>		0.2013 mL	1.0063 mL	2.0125 mL	
Please refer to the solubility information to select the appropriate solvent.						
<b>In Vivo</b>	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 4.17 mg/mL (8.39 mM); Clear solution  2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 4.17 mg/mL (8.39 mM); Clear solution					

### BIOLOGICAL ACTIVITY

<b>Description</b>	Oxytetracycline hydrochloride is an antibiotic belonging to the tetracycline class. Oxytetracycline hydrochloride potent inhibits Gram-negative and Gram-positive bacteria. Oxytetracycline hydrochloride is a protein synthesis inhibitor and prevents the binding from aminoacyl-tRNA to the complex m-ribosomal RNA. Oxytetracycline hydrochloride also possesses anti-HSV-1 activity <sup>[1][2][3]</sup> .			
<b>IC<sub>50</sub> &amp; Target</b>	HSV-1	Microbial Metabolite	Tetracycline	Bacterial
	Human Endogenous Metabolite			

<b>In Vitro</b>	<p>Oxytetracycline is an important member of the bacterial aromatic polyketide family, which is a structurally diverse class of natural products. Oxytetracycline is synthesized by a type II polyketide synthase that generates the poly-beta-ketone backbone through successive decarboxylative condensation of malonyl-CoA extender units, followed by modifications by cyclases, oxygenases, transferases, and additional tailoring enzymes<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>In Vivo</b>	<p>The effects of administration a therapeutic dose of Oxytetracycline (82.8 mg/kg of bw to 1 % bw/day) for 10 days are species specific. Oxytetracycline increases the relative liver weight in <i>Morone chrysops</i> x <i>M. saxatilis</i>, the enzymatic activity of CYP3A4 in <i>Ictalurus punctatus</i>, protein expression of CYP3A4 in <i>Oreochromis niloticus</i> and depleted the hepatic CYP3A4 in the latter<sup>[1]</sup>.</p> <p>For Oxytetracycline, the limits are 100 µg/kg in muscle and milk, 200 µg/kg in egg, 300 µg/kg in liver and 600 µg/kg in kidney. Oxytetracycline (OTC) is administered to fish as medicated feed at concentrations ranging from 35 to 75 mg a.i kg-1 biomass day-1 for 7-14 days<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## CUSTOMER VALIDATION

- Water Res. 2023 May 21, 120110.
- Theranostics. 2022 Jan 1;12(3):1187-1203.
- Chemosphere. 2019 Jun;225:378-387.
- Sci Rep. 2022 Aug 25;12(1):14502.
- Saudi Pharm J. 2021 Apr 23.

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## REFERENCES

- [1]. Elia AC, et al. Transferability of oxytetracycline (OTC) from feed to carp muscle and evaluation of the antibiotic effects on antioxidant systems in liver and kidney. *Fish Physiol Biochem*. 2014 Aug;40(4):1055-68.
- [2]. Pickens LB, et al. Oxytetracycline biosynthesis. *J Biol Chem*. 2010 Sep 3;285(36):27509-15.
- [3]. Oguz Guvenmez, et al. A New Treatment Method for Herpes Simplex Virus Type 1-related Skin Lesions. *Scientific & Academic*. 2019; 8(1): 6-8.

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

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