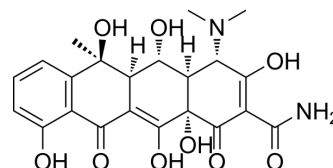


## Oxytetracycline

<b>Cat. No.:</b>	HY-B0275		
<b>CAS No.:</b>	79-57-2		
<b>Molecular Formula:</b>	C <sub>22</sub> H <sub>24</sub> N <sub>2</sub> O <sub>9</sub>		
<b>Molecular Weight:</b>	460.43		
<b>Target:</b>	Bacterial; HSV; Endogenous Metabolite; Antibiotic		
<b>Pathway:</b>	Anti-infection; Metabolic Enzyme/Protease		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 50 mg/mL (108.59 mM)  
 H<sub>2</sub>O : < 0.1 mg/mL (insoluble)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.1719 mL	10.8594 mL	21.7188 mL
	5 mM	0.4344 mL	2.1719 mL	4.3438 mL
	10 mM	0.2172 mL	1.0859 mL	2.1719 mL

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

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
 Solubility: ≥ 2.5 mg/mL (5.43 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
 Solubility: ≥ 2.5 mg/mL (5.43 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
 Solubility: ≥ 2.5 mg/mL (5.43 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Oxytetracycline is an antibiotic belonging to the tetracycline class. Oxytetracycline potent inhibits Gram-negative and Gram-positive bacteria. Oxytetracycline is a protein synthesis inhibitor and prevents the binding from aminoacyl-tRNA to the complex m-ribosomal RNA. Oxytetracycline also possesses anti-HSV-1 activity<sup>[1][2][3]</sup>.

#### IC<sub>50</sub> & Target

Microbial Metabolite	Tetracycline	Bacterial	HSV-1
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	Human Endogenous Metabolite
<b>In Vitro</b>	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> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
<b>In Vivo</b>	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> . 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> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## 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, A.C., 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.
- [2]. Pickens LB, et al. Oxytetracycline biosynthesis. *J Biol Chem*. 2010 Sep 3;285(36):27509-15.
- [3]. Oguze 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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