# Tetracycline

**Cat. No.:** HY-A0107

**CAS No.:** 60-54-8

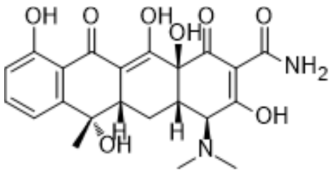
**Molecular Formula:** $C_{22}H_{24}N_2O_8$

**Molecular Weight:** 444.43

**Target:** Bacterial; Antibiotic

**Pathway:** Anti-infection

**Storage:** Powder -20°C 3 years
4°C 2 years
* The compound is unstable in solutions, freshly prepared is recommended.



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 125 mg/mL (281.26 mM; Need ultrasonic)
$H_2O$ : < 0.1 mg/mL (ultrasonic) (insoluble)

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 2.2501 mL | 11.2504 mL | 22.5007 mL |
| 5 mM | 0.4500 mL | 2.2501 mL | 4.5001 mL |
| 10 mM | 0.2250 mL | 1.1250 mL | 2.2501 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: ≥ 2.08 mg/mL (4.68 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.68 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Tetracycline is a broad-spectrum antibiotic with oral activity. Tetracycline exhibits activity against a wide range of bacteria including gram-positive, gram-negative bacteria, chlamydiae, mycoplasmas and rickettsiae. Tetracycline can be used for the research of infections[1].

**$IC_{50}$ & Target**

Tetracycline

**In Vitro**

Tetracycline shows susceptibilfty of V. vulnlflcus strain B3547 with MIC value of 0.5 g/mL[2].
Tetracycline inhibits the L-amyloid aggregates formation and disassembles the pre-formed fibrils[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

**In Vivo**

Tetracycline (3 mg/kg; i.p. every 12 h until survive) survives mice from bacteremia[2].

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| | |
|---|---|
| Animal Model: | Female ICR mice weight 30 to 40 g with V.vulnificus strain B3547 infection[2] |
| Dosage: | 3 mg/kg |
| Administration: | Intraperitoneal injection; 3 mg/kg every 12h until survive |
| Result: | Inhibited the growth of human CNE-2 xenografts in nude mice. |

## CUSTOMER VALIDATION

- Cell Res. 2022 Oct 14.
- Cell Res. 2020 Dec;30(12):1063-1077.
- Nat Commun. 2022 Mar 2;13(1):1116.
- J Clin Invest. 2023 Apr 17;133(8):e159941.
- Chem Eng J. 2023 Oct 15, 474, 145978.

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## REFERENCES

[1]. Bowdre JH, et al. Antibiotic efficacy against Vibrio vulnificus in the mouse: superiority of tetracycline. J Pharmacol Exp Ther. 1983 Jun;225(3):595-8.

[2]. Forloni G, et al. Anti-amyloidogenic activity of tetracyclines: studies in vitro. FEBS Lett. 2001 Jan 5;487(3):404-7.

[3]. Chopra I, et al. Tetracycline antibiotics: mode of action, applications, molecular biology, and epidemiology ofbacterial resistance. Microbiol Mol Biol Rev. 2001 Jun;65(2):232-60.



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