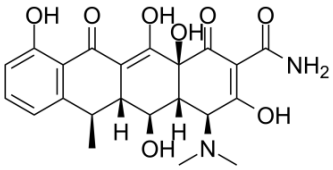
Doxycycline (hyclate)

Cat. No.: HY-N0565B
CAS No.: 24390-14-5
Molecular Formula: $C_{22}H_{24}N_2O_{8}\cdot{}_1/_2C_2H_6O.ClH.{}_1/_2H_2O$
Molecular Weight: 512.94
Target: MMP; Bacterial; Bacterial; Antibiotic
Pathway: Metabolic Enzyme/Protease; Anti-infection
Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



$0.5H_2O$
$0.5C_2H_6O$
HCl

SOLVENT & SOLUBILITY

In Vitro

H_2O : 13.89 mg/mL (27.08 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.9495 mL	9.7477 mL	19.4955 mL
	5 mM	0.3899 mL	1.9495 mL	3.8991 mL
	10 mM	0.1950 mL	0.9748 mL	1.9495 mL

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

In Vivo

1. Doxycycline is dissolved in 50 mL of drinking water containing 10% sucrose and then mixed with 100 g of mouse chow[5].

BIOLOGICAL ACTIVITY

Description

Doxycycline (hyclate) (Doxycycline hydrochloride hemiethanolate hemihydrate), an antibiotic, is an orally active and broad-spectrum metalloproteinase (MMP) inhibitor[1].

In Vitro

Doxycycline (hyclate) (Doxycycline hydrochloride hemiethanolate hemihydrate) affects growth of glioma cells only under high concentrations[2].
Doxycycline (hyclate) decreases MT-CO1 protein content with concentrations of 1 μg/mL and higher in SVG cells[2].
Doxycycline (1 μg/mL) induce short-hairpin RNA (shRNA) expression in H23 cells[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[2]

Cell Line:	LNT-229, G55, and U343 glioma cells
Concentration:	0.01, 0.1, 1, or 10 μg/mL
Incubation Time:	4 days

Result:	Affected growth of glioma cells only under high concentrations.

Western Blot Analysis[2]

Cell Line:	SVG cells
Concentration:	0.01, 0.1, 1, or 10 μg/mL
Incubation Time:	24 hours
Result:	Decreaseed MT-CO1 protein content with concentrations of 1 μg/mL and higher.

In Vivo

Doxycycline (hyclate) (Doxycycline hydrochloride hemiethanolate hemihydrate) (oral; 200 or 800 mg/kg/day; for 3 months) reduces active MMP-9 in untreated HT mice in a dose-dependent manner[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	6-month-old female Heterozygous Col3a1-deficient (HT) mice[1]
Dosage:	200 or 800 mg/kg
Administration:	Oral; per day; for 3 months
Result:	Reduced active MMP-9 in a dose-dependent manner.

CUSTOMER VALIDATION

- Mol Cancer. 2020 Mar 30;19(1):68.
- Mol Cancer. 2020 Sep 9;19(1):139.
- Cell Death Differ. 2019 Nov;26(11):2400-2415.
- Cancer Lett. 2016 Jun 28;376(1):188-96.
- Cell Death Dis. 2020 May 7;11(5):331.

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REFERENCES

[1]. Wilfried Briest, et al. Doxycycline ameliorates the susceptibility to aortic lesions in a mouse model for the vascular type of Ehlers-Danlos syndrome. J Pharmacol Exp Ther. 2011 Jun;337(3):621-7.

[2]. Luger AL, et al. Doxycycline Impairs Mitochondrial Function and Protects Human Glioma Cells from Hypoxia-Induced Cell Death: Implications of Using Tet-Inducible Systems. Int J Mol Sci. 2018 May 17;19(5).

[3]. Eusebio Manchado, et al. A combinatorial strategy for treating KRAS-mutant lung cancer. Nature. 2016 Jun 30;534(7609):647-51.

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

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