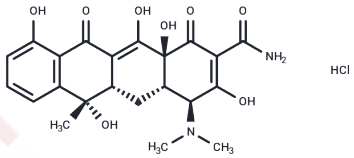
Data Sheet (Cat.No.T0912)

TargetMol

Tetracycline hydrochloride

Chemical Properties



CAS No. :	64-75-5
Formula:	C22H24N2O8·HCl
Molecular Weight:	480.90
Storage:	Store at low temperature,Keep away from direct sunlight,Keep away from moisture Powder: -20°C for 3 years | In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.

Biological Description

Description	Tetracycline hydrochloride (NCI-c55561) is the hydrochloride salt of the tetracycline, a broad-spectrum naphthacene antibiotic produced semisynthetically from chlortetracycline, an antibiotic isolated from the bacterium Streptomyces aureofaciens. In bacteria, tetracycline blocks binding of aminoacyl-tRNA to the mRNA-ribosome complex, thereby inhibiting protein synthesis and bacterial cell growth. Because naturally, fluorescing tetracycline binds to a newly formed bone at the bone/osteoid interface, tetracycline-labeling of bone and fluorescence microscopy may be used to perform bone histomorphometry.
Targets(IC50)	ribosome,Antibacterial,Antibiotic
In vitro	Tetracyclines are versatile broad-spectrum antibiotics effective against a vast array of organisms, including gram-positive and gram-negative bacteria, as well as atypical pathogens like chlamydiae, mycoplasmas, rickettsiae, and protozoan parasites. Their mechanism of action involves blocking bacterial protein synthesis by hindering the binding of aminoacyl-tRNA to the bacterial ribosome. Specifically, in gram-negative enteric bacteria, tetracyclines enter through OmpF and OmpC porin channels as positively charged coordination complexes, likely involving magnesium ([1]).
In vivo	Tetracyclines are utilized for managing infections in various livestock, including poultry, cattle, sheep, and swine, and in aquaculture species such as salmon, catfish, and lobsters[2]. In specific scenarios, such as treating large populations of commercially farmed poultry, these antibiotics may be administered directly through feed, water, or aerosols. Additionally, tetracyclines may serve to promote or enhance growth.

Solubility Information

Solubility	DMSO: 126 mg/mL (262.01 mM),Sonication is recommended. Ethanol: < 1 mg/mL (insoluble or slightly soluble), H2O: 88 mg/mL (182.99 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (8.32 mM),Sonication is recommended.

In vivo Formulation	*Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.0794 mL	10.3972 mL	20.7943 mL
5 mM	0.4159 mL	2.0794 mL	4.1589 mL
10 mM	0.2079 mL	1.0397 mL	2.0794 mL
50 mM	0.0416 mL	0.2079 mL	0.4159 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

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