

Tetracycline Hydrochloride

The tetracyclines consist of a polycyclic ring with differing side chains and are a broad-spectrum class of antibiotics against aerobes and anaerobes.

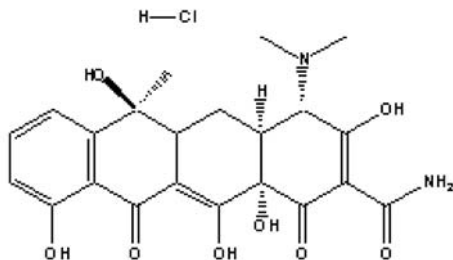
Members of this class inhibit protein synthesis by binding to the 30S ribosomal subunit thereby blocking the incoming aminoacyl-tRNA from attaching to the acceptor site on the mRNA-ribosome complex. The congener tetracycline is semi-synthetically produced from chlortetracycline, a product of *Staphylococcus aureofaciens*.

Tetracyclines are bacteriostatic and their effects are reduced by dilution and by chelation with divalent cations. The tetracyclines are broad-spectrum antibiotics, but resistance to one congener confers resistance to all congeners.

Molecular Weight and Formula:

480.9 $C_{22}H_{24}N_2O_8 \cdot HCl$

Molecular Structure:



Mode of Action:

Binds to the 30S ribosomal subunit thereby blocking the incoming aminoacyl-tRNA from attaching to the acceptor site on the mRNA-ribosome complex.

Conferred Resistance:

A change in cell permeability

Spectrum:

Gram (+)
Gram (-)

Microbiological Potency:

900 $\mu\text{g}/\text{mg}$ [min]

Effective Concentration:

10 $\mu\text{g}/\text{mL}$

Appearance:

White, crystalline powder

Storage:

Frozen (-5 to -20°C), protected from light

Notes on Preparation:

Tetracycline hydrochloride is freely soluble in water but its potency is reduced at a pH below 2. Also, alkali hydroxides will cause hydrolysis and precipitation of tetracycline. Store stock solutions frozen, protected from light.

Product Description	Catalog No.	Size
Tetracycline Hydrochloride Powder	61-242-RG	1 x 5 g

References:

1. Champoux et al. 1994. Sherris Medical Microbiology: An Introduction to Infectious Diseases. 3rd. ed. Ryan KJ, editor. Stamford: Appleton and Lange
2. Goodman and Gilman. 1996. The Pharmacological Basis of Therapeutics. 9th ed. Hardman JG, Limbird LE, editors. New York (NY): McGraw-Hill Health Professions Division.