SIGMA-ALDRICH

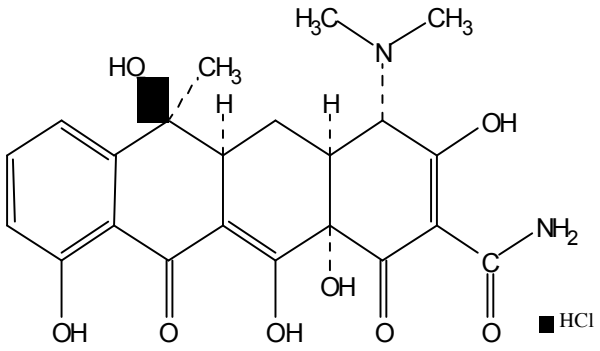
3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

TETRACYCLINE HYDROCHLORIDE

Product Number **T 3383**

CAS NUMBER: 64-75-5
SYNONYMS: Achromycin hydrochloride, Achromycin V, Ala Tet, Amycin hydrochloride, Artomycin, Bristacycline, Cefracycline tablets, Chlohydrate de tetracycline (French), Chlorowodorku Tetracykliny (Polish), Cyclopar, Diacycine, Dumocycin, Medamycin, Mephacyclin, NCI-C55561, Neocyclin, Paltet, Panmycin hydrochloride, Partrex, Piracaps, Polycycline hydrochloride, Qidtet, Quadracycline, Quatrex, Remicyclin, Ricycline, Ro-cycline, Steclin, Steclin hydrochloride, Stilciclina, Subamycin, Sumycin, Supramycin, Sustamycin, T-250 capsules, TC hydrochloride, Tefilin, Teline, Telotrex, Tet-cy, Tetrabakat, Tetrabid, Tetrablet, Tetracaps, Tetrachel, Tetraciclina cloridrato (Italian), Tetracompren, Tetracycline chloride, Tetra-D, Tetrakap, Tetralution, Tetramavan, Tetra-wedel, Tetrosol, Topicycline, Totomycin, Triphacyclin, U-5965, Unicin, Unimycin, Vetquamycin-324



Product Description

Molecular formula: $C_{22}H_{24}N_2O_8 \cdot HCl$
Formula weight: 480.9 (anhydrous)
pK_a = 3.3, 7.7, 9.7 at 25 °C[1]
Melting Point: Decomposes at 214 °C[2]
E^{Mm} (220nm) = 13 (free base in 0.1 M HCl)[2]
E^{mM} (268nm) = 18.04 (free base in 0.1 M HCl)[2]
E^{mM} (355nm) = 13.32 (free base in 0.1 M HCl)[2]
$[\alpha]_D^{20}$ = -257.9E (c = 0.5% in 0.1 M HCl at 25 °C)[2]

Tetracyclines possess a wide range of antimicrobial activity against gram-positive and gram-negative bacteria. The bacterial ribosome is the site of action of tetracyclines. Access to the ribosomes of gram-negative bacteria is obtained by passive diffusion through hydrophilic pores in the outer cell membrane and then by an energy-dependent active transport system that pumps all tetracyclines through the inner cytoplasmic membrane. This active transport system may require a periplasmic protein carrier. Tetracyclines bind specifically to 30S ribosomes and appear to inhibit protein synthesis by preventing access of aminoacyl tRNA to the acceptor site on the mRNA-ribosome complex. The inhibitory effects of the tetracyclines can be reversed by washing. This suggests that the reversibly bound antibiotic rather than the small portion of irreversibly bound drug is responsible for the antibacterial action.[3]

Preparation Instruction

This product is freely soluble in water, soluble in methanol and ethanol but insoluble in ether and hydrocarbons.[2] The product is soluble in water (50 mg/ml) with heating, yielding a clear, yellow to yellow-orange solution. A clear, yellow green solution also results when 50 mg is dissolved in 4 ml 95% ethanol with heating. Tetracycline is rapidly destroyed by alkali hydroxide solutions and solutions in water become turbid on standing due to hydrolysis and precipitation of tetracycline. The potency of tetracycline is reduced in solutions with pH below 2. The pH of a 1% aqueous solution is 1.8 to 2.8.[3]

Storage/Stability

This product should be stored in the freezer and protected from light and moisture. The product will darken in moist air when exposed to strong sunlight.[3] Material was assayed material that had been stored for approximately 4 years below 0 °C and the material still displayed a single spot by thin-layer chromatography

References

1. *Clarke's Isolation and Identification of Drugs*, 2nd ed., p. 1005 (1986).
2. *The Merck Index*, 11th ed., p. 1449-1450, #9130 (1989).
3. *Martindale The Extra Pharmacopoeia*, 29th ed., 313-323 (1989).
4. *Goodman and Gilman's The Pharmacological Basis of Therapeutics*, 7th ed., 1170-1171 (1985).

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