

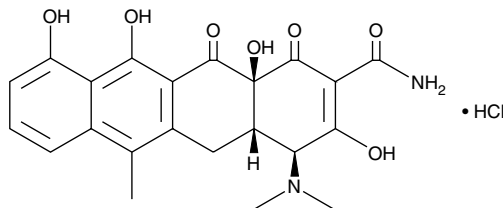
Product Information



Anhydrotetracycline (hydrochloride)

Item No. 10009542

CAS Registry No.: 13803-65-1
Formal Name: 4-(dimethylamino)-1,4S,4aS,5,12,12aS-hexahydro-3,10,11,12a-tetrahydroxy-6-methyl-1,12-dioxo-mono-hydrochloride-2-naphthacene-carboxamide
MF: C₂₂H₂₂N₂O₇ • HCl
FW: 462.9
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 224, 272, 428 nm



Laboratory Procedures

For long term storage, we suggest that anhydrotetracycline (hydrochloride) be stored as supplied at -20°C. It should be stable for at least two years.

Anhydrotetracycline (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the anhydrotetracycline (hydrochloride) in an organic solvent purged with an inert gas. Anhydrotetracycline (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of anhydrotetracycline (hydrochloride) in ethanol is approximately 2 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of anhydrotetracycline (hydrochloride) can be prepared by directly dissolving the crystalline compound in aqueous buffers. The solubility of anhydrotetracycline (hydrochloride) in PBS, pH 7.2, is approximately 0.25 mg/ml. We do not recommend storing the aqueous solution for more than one day.

The tetracycline repressor (TetR) is a transcriptional regulator which normally binds tightly to its palindromic tetO operator DNA, blocking gene expression.¹ Tet causes the repressor to dissociate from the DNA, allowing transcription to occur. A novel reverse TetR (revTetR) requires tetracycline as a co-repressor to bind tetO and block transcription.^{2,3} Anhydrotetracycline (hydrochloride) is a powerful effector in both the TetR and revTetR systems, binding the TetR 35-fold more strongly than Tet.^{1,4} Moreover, anhydrotetracycline poorly binds the 30S ribosomal subunit, compared to Tet,⁵ so it does not act as a general inhibitor of translation and is a poor antibiotic. Perhaps related to this, the concentration of anhydrotetracycline that inhibits eukaryotic cell growth is more than a 1,000-fold above the dose that alters transcription through TetR.¹

References

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3. Resch, M., Striegl, H., Henssler, E.M., *et al. Nucleic Acids Res.* **36**(13), 4390-4401 (2008).
4. Degenkolb, J., Takahashi, M., Ellestad, G.A., *et al. Antimicrob. Agents Chemother.* **35**(8), 1591-1595 (1991).
5. Rasmussen, B., Noller, H.F., Daubresse, G., *et al. Antimicrob. Agents Chemother.* **35**(11), 2306-2311 (1991).

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WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

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