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-monohydrochloride-2-
naphthacenecarboxamide

MF: C_{22}H_{22}N_{2}O_{7} • HCl
FW: 462.9
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis: \lambda_{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.\textsuperscript{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.\textsuperscript{2,3}
Anhydrotetracycline (hydrochloride) is a powerful effector in both the TetR and revTetR systems, binding the TetR 35-fold
more strongly than Tet.\textsuperscript{1,4} Moreover, anhydrotetracycline poorly binds the 30S ribosomal subunit, compared to Tet,\textsuperscript{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.\textsuperscript{1}

References

WARNING: This product is for laboratory research only: not for administration to humans, not for human or veterinary
diagnostic or therapeutic use.

MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly
after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data
Sheet, which has been sent via email to your institution.

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