

PRODUCT INFORMATION

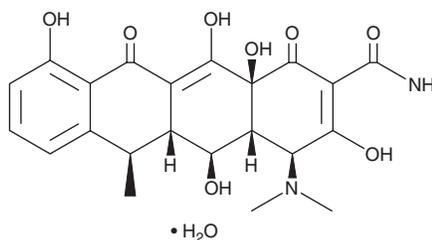


Doxycycline (hydrate)

Item No. 35830

CAS Registry No.: 17086-28-1
Formal Name: (4S,4aR,5S,5aR,6R,12aS)-4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,5,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacene-carboxamide, monohydrate

MF: C₂₂H₂₄N₂O₈ • H₂O
FW: 462.4
Purity: ≥98%
UV/Vis.: λ_{max}: 220, 269, 355 nm
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Doxycycline (hydrate) is supplied as a solid. A stock solution may be made by dissolving the doxycycline (hydrate) in the solvent of choice, which should be purged with an inert gas. Doxycycline (hydrate) is soluble in DMSO and dimethyl formamide (≥10 mg/ml) and sparingly soluble in ethanol (1-10 mg/ml)

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 doxycycline (hydrate) can be prepared by directly dissolving the solid in aqueous buffers. It is sparingly soluble: (1-10 mg/ml) in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

Doxycycline is a broad-spectrum tetracycline antibiotic.^{1,2} It inhibits bacterial protein synthesis by binding to ribosomes.^{2,3} Doxycycline also selectively inhibits human matrix metalloproteinase-8 (MMP-8) and MMP-13 over MMP-1 with 50, 60, and 5% inhibition, respectively, when used at a concentration of 30 μM.⁴ It can be used as a regulator for inducible gene expression systems where expression depends on either the presence (Tet-On) or absence (Tet-Off) of doxycycline.^{5,6} Formulations containing doxycycline have been used in the treatment of bacterial infections and the prevention of malaria.

References

1. Williamson, G.M. *Chemotherapia (Basel)* **13(Suppl. 1)**, 1-6 (1968).
2. Griffin, M.O., Ceballos, G., and Villarreal, F.J. *Pharmacol. Res.* **63(2)**, 102-107 (2011).
3. Chopra, I. *Antimicrob. Agents Chemother.* **38(4)**, 637-640 (1994).
4. Smith, G.N., Jr., Mickler, E.A., Hasty, K.A., et al. *Arthritis Rheum.* **42(6)**, 1140-1146 (1999).
5. Gould, D.J., Berenstein, M., Dreja, H., et al. *Gene Ther.* **7(24)**, 2061-2070 (2000).
6. Li, Z., Michael, I.P., Zhou, D., et al. *Proc. Natl. Acad. Sci. USA* **110(13)**, 5004-5009 (2013).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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