

# PRODUCT INFORMATION



## Doxycycline-d<sub>3</sub> (hyclate)

Item No. 28528

**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-d)-1,11-dioxo-2-naphthacene-4,6-d<sub>2</sub>-carboxamide, hydrochloride, compd. with ethanol, hydrate (2:2:1:X)

**MF:** 2[C<sub>22</sub>H<sub>21</sub>D<sub>3</sub>N<sub>2</sub>O<sub>8</sub>] • 2HCl • XH<sub>2</sub>O • C<sub>2</sub>H<sub>6</sub>O

**FW:** 894.9

**Chemical Purity:** ≥95% (Doxycycline)

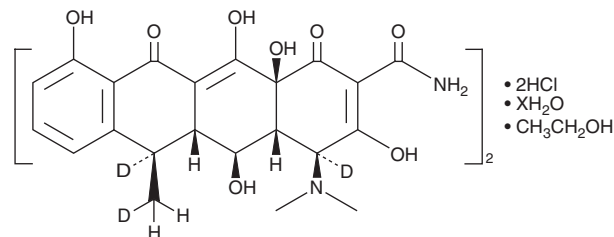
**Deuterium**

**Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>3</sub>); ≤1% d<sub>0</sub>

**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-d<sub>3</sub> (hyclate) is intended for use as an internal standard for the quantification of doxycycline (Item No. 14422) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Doxycycline-d<sub>3</sub> (hyclate) is supplied as a solid. A stock solution may be made by dissolving the doxycycline-d<sub>3</sub> (hyclate) in the solvent of choice, which should be purged with an inert gas. Doxycycline-d<sub>3</sub> (hyclate) is slightly soluble in DMSO and methanol.

### Description

Doxycycline is a broad-spectrum tetracycline antibiotic.<sup>1,2</sup> It inhibits bacterial protein synthesis by binding to ribosomes.<sup>2,3</sup> 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.<sup>4</sup> 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.<sup>5,6</sup> 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.

#### WARRANTY AND LIMITATION OF REMEDY

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