

## Product Data Sheet

Product Name: Doxycycline-d3 (hyclate)

Cat. No.: GC45440

### Chemical Properties

Cas. No.

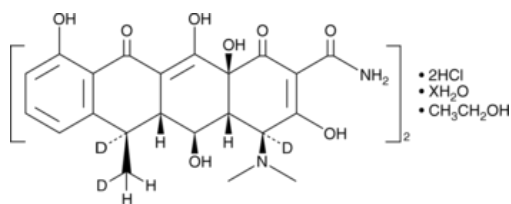
Formula  $2[C_{22}H_{21}D_3N_2O_8] \cdot 2HCl \cdot XH_2O \cdot C_2H_6O$  M.Wt 1013.9

Solubility DMSO: slightly soluble, Methanol: slightly soluble Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



### Background

Doxycycline-d3 is intended for use as an internal standard for the quantification of doxycycline by GC- or LC-MS. 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. The in vitro activity of vibramycin (doxycycline). Chemotherapia (Basel) 13(Suppl. 1), 1-6 (1968).
2. Griffin, M.O., Ceballos, G., and Villarreal, F.J. Tetracycline compounds with non-antimicrobial

**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

## Product Data Sheet

---

organ protective properties: Possible mechanisms of action. Pharmacol. Res. 63(2), 102-107 (2011).

3. Chopra, I. Tetracycline analogs whose primary target is not the bacterial ribosome. Antimicrob. Agents Chemother. 38(4), 637-640 (1994).

4. Smith, G.N., Jr., Mickler, E.A., Hasty, K.A., et al. Specificity of inhibition of matrix metalloproteinase activity by doxycycline: Relationship to structure of the enzyme. Arthritis Rheum. 42(6), 1140-1146 (1999).

5. Gould, D.J., Berenstein, M., Dreja, H., et al. A novel doxycycline inducible autoregulatory plasmid which displays "on"/"off" regulation suited to gene therapy applications. Gene Ther. 7(24), 2061-2070 (2000).

6. Li, Z., Michael, I.P., Zhou, D., et al. Simple piggyBac transposon-based mammalian cell expression system for inducible protein production. Proc. Natl. Acad. Sci. U.S.A. 110(13), 5004-5009 (2013).

**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA