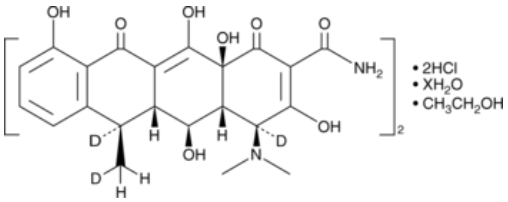
Product Data Sheet

Product Name: Doxycycline-d3 (hyclate)
Cat. No.: GC45440

Chemical Properties

Cas. No.			
Formula	2[C22H21D3N2O8].2HCl.XH2O.C2H6O	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.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. 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

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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.
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