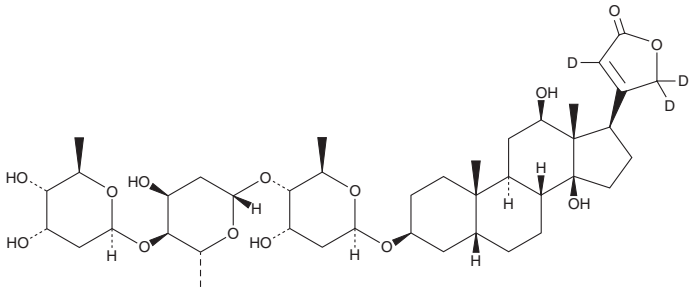
PRODUCT INFORMATION

Digoxin-d_3

Item No. 10010657

CAS Registry No.: 127299-95-0
Formal Name: (3β,5β,12β)-3-[(O-2,6-dideoxy-β-D-ribo-hexopyranosyl-(1→4)-O-2,6-dideoxy-β-D-ribo-hexopyranosyl-(1→4)-2,6-dideoxy-β-D-ribo-hexopyranosyl)oxy]-12,14-dihydroxy-card-20(22)-enolide-21,21,22-d_3
MF: $C_{41}H_{61}D_3O_{14}$
FW: 784.0
Chemical Purity: ≥95% (Digoxin)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_3); ≤1% d_0
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

Digoxin-d_3 is intended for use as an internal standard for the quantification of digoxin (Item No. 22266) 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).

Digoxin-d_3 is supplied as a solid. A stock solution may be made by dissolving the digoxin-d_3 in the solvent of choice, which should be purged with an inert gas. Digoxin-d_3 is soluble in organic solvents such as methanol (warmed) and DMSO.

Description

Digoxin is a cardiac glycoside and metabolite of digitoxin (Item No. 27825) that binds to and inhibits the Na^+/K^+-ATPase in cardiac tissues in an ATP- and Mg^{2+}-dependent manner.[1] This inhibition results in loss of the transmembrane Na^+ gradient, which decreases activity of the Na^+/Ca^{2+} exchanger, increasing intracellular Ca^{2+} levels, inotropy, and cardiac force.[2] It increases activity of mitochondrial ATPase and actomyosin ATPase in rat hearts, which is directly correlated with increased myofibrillar contractile strength.[3] *In vivo*, digoxin also decreases right atrial pressure and increases cardiac output in a canine model of congestive heart failure produced by pulmonary artery constriction.[4] Formulations containing digoxin have been used to treat atrial fibrillation.[5]

References

1. Matsui, H. and Schwartz, A. *Biochim. Biophys. Acta.* **151(3)**, 655-663 (1968).
2. Neves, C.H., Tibana, R.A., Prestes, J., *et al. Int. J. Sports Med.* **38(4)**, 263-269 (2017).
3. Hamrick, M.E. and Fritz, P.J. *Biochem. Biophys. Res. Commun.* **22(5)**, 540-546 (1966).
4. Davis, J.O., Howell, D.S., and Hyatt, R.E. *Circ. Res.* **3(3)**, 259-263 (1955).
5. Kotecha, D., Calvert, M., Deeks, J.J., *et al. BMJ Open* **7(7)**, e015099 (2017).

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