

PRODUCT INFORMATION



Digoxin-d₃

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-dihydroxycard-20(22)-enolide-21,21,22-d₃

MF: C₄₁H₆₁D₃O₁₄

FW: 784.0

Chemical Purity: ≥95% (Digoxin)

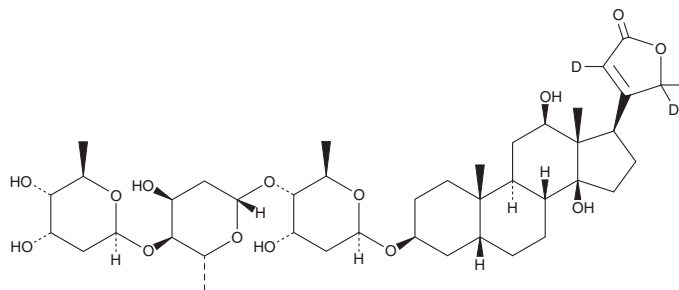
Deuterium

Incorporation: ≥99% deuterated forms (d₁-d₃); ≤1% d₀

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-d₃ 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-d₃ is supplied as a solid. A stock solution may be made by dissolving the digoxin-d₃ in the solvent of choice, which should be purged with an inert gas. Digoxin-d₃ 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 Mg²⁺-dependent manner.¹ This inhibition results in loss of the transmembrane Na⁺ gradient, which decreases activity of the Na⁺/Ca²⁺ exchanger, increasing intracellular Ca²⁺ 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).

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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