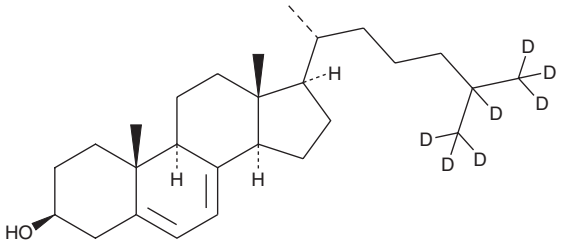
PRODUCT INFORMATION

7-dehydro Cholesterol-d_7

Item No. 25969

CAS Registry No.: 388622-58-0
Formal Name: cholesta-5,7-dien-25,26,26,26,27,27,27-d_7-3β-ol
Synonyms: Δ^7-Cholesterol-d_7, 7-DHC-d_7, Provitamin D_3-d_7
MF: $C_{27}H_{37}D_7O$
FW: 391.7
Chemical Purity: ≥90% (7-dehydro Cholesterol)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_7); ≤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

7-dehydro Cholesterol-d_7 is intended for use as an internal standard for the quantification of 7-dehydro cholesterol (Item No. 14612) 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).

7-dehydro Cholesterol-d_7 is supplied as a solid. A stock solution may be made by dissolving the 7-dehydro cholesterol-d_7 in the solvent of choice, which should be purged with an inert gas. 7-dehydro Cholesterol-d_7 is soluble in methanol (warmed) and is slightly soluble in chloroform.

Description

7-dehydro Cholesterol (7-DHC) is an immediate precursor of cholesterol.[1] It is reduced to cholesterol by the enzyme 3β-hydroxysterol-Δ^7-reductase (DHCR7) in the last step of cholesterol biosynthesis. It accumulates in Smith-Lemli-Opitz syndrome (SLOS), a disorder characterized by a mutation in the *DHCR7* gene and decreased cholesterol levels in bodily tissues and fluids, as well as microcephaly, intellectual disability, and distinctive dysmorphic features.[1,2] 7-DHC is highly susceptible to free radical oxidation, giving rise to several oxysterols that may be involved in the pathogenesis of SLOS.[1] 7-DHC levels are increased in brain, liver, and serum in a rat model of SLOS induced by the DHCR7 inhibitor AY 9944 (Item No. 14611).[1] 7-DHC is also a provitamin that is converted to vitamin D_3 (Item No. 11792) by ultraviolet-B (UVB) light in a human skin equivalent system and in isolated human skin samples.[3,4]

References

1. Xu, L., Liu, W., Sheflin, L.G., *et al. J. Lipid Res.* **52(10)**, 1810-1820 (2011).
2. Xu, G., Salen, G., Shefer, S., *et al. J. Clin. Invest.* **95(1)**, 76-81 (1995).
3. Lehmann, B., Genehr, T., Knuschke, P., *et al. J. Invest. Dermatol.* **117(5)**, 1179-1185 (2001).
4. Chen, T.C., Chimeh, F., Lu, Z., *et al. Arch. Biochem. Biophys.* **460(2)**, 213-217 (2007).

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