

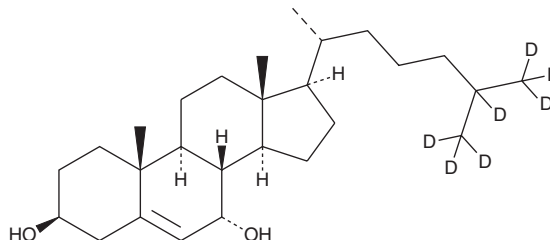
# PRODUCT INFORMATION



## 7 $\alpha$ -hydroxy Cholesterol-d<sub>7</sub>

Item No. 25547

<b>CAS Registry No.:</b>	349553-94-2
<b>Formal Name:</b>	cholest-5-ene-25,26,26,26,27,27,27-d <sub>7</sub> - 3 $\beta$ ,7 $\alpha$ -diol
<b>Synonym:</b>	7 $\alpha$ -hydroxycholesterol-d <sub>7</sub>
<b>MF:</b>	C <sub>27</sub> H <sub>39</sub> D <sub>7</sub> O <sub>2</sub>
<b>FW:</b>	409.7
<b>Chemical Purity:</b>	≥98% (7 $\alpha$ -hydroxy Cholesterol)
<b>Deuterium Incorporation:</b>	≥99% deuterated forms (d <sub>1</sub> -d <sub>7</sub> ); ≤1% d <sub>0</sub>
<b>Supplied as:</b>	A solid
<b>Storage:</b>	-20°C
<b>Stability:</b>	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

7 $\alpha$ -hydroxy Cholesterol-d<sub>7</sub> is intended for use as an internal standard for the quantification of 7 $\alpha$ -hydroxy cholesterol (Item No. 20098) 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 $\alpha$ -hydroxy Cholesterol-d<sub>7</sub> is supplied as a solid. A stock solution may be made by dissolving the 7 $\alpha$ -hydroxy cholesterol-d<sub>7</sub> in the solvent of choice, which should be purged with an inert gas. 7 $\alpha$ -hydroxy Cholesterol-d<sub>7</sub> is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 7 $\alpha$ -hydroxy cholesterol-d<sub>7</sub> in these solvents is approximately 20, 0.1, and 2 mg/ml, respectively.

### Description

7 $\alpha$ -hydroxy Cholesterol is an oxysterol and a precursor in the biosynthesis of the bile acids cholic acid (CA; Item No. 20250) and chenodeoxycholic acid (CDCA; Item No. 10011286).<sup>1,2</sup> It is formed via the oxidation of cholesterol (Item No. 9003100) by cholesterol 7 $\alpha$ -hydroxylase/CYP7A1 in rat liver microsomes.<sup>1</sup> 7 $\alpha$ -hydroxy Cholesterol (40  $\mu$ M) increases levels of the adhesion molecules ICAM-1, VCAM-1, and E-selectin in human umbilical vein endothelial cells (HUVECs).<sup>3</sup> It increases secretion of chemokine (C-C motif) ligand 2 (CCL2) and matrix metalloproteinase-9 (MMP-9) in serum-deprived THP-1 cells when used at a concentration of 5  $\mu$ g/ml.<sup>4</sup> 7 $\alpha$ -hydroxy Cholesterol has been found in macrophages isolated from atherosclerotic lesions in rabbits fed a high-cholesterol diet.<sup>5</sup>

### References

1. Mitropoulos, K.A. and Balasubramaniam, S. Cholesterol 7 $\alpha$ -hydroxylase in rat liver microsomal preparations. *Biochem. J.* **128**(1), 1-9 (1972).
2. Chiang, J.Y.L. Bile acid metabolism and signaling in liver disease and therapy. *Liver Res.* **1**(1), 3-9 (2017).
3. Lemaire, S., Lizard, G., Monier, S., et al. Different patterns of IL-1 $\beta$  secretion, adhesion molecule expression and apoptosis induction in human endothelial cells treated with 7 $\alpha$ -, 7 $\beta$ -hydroxycholesterol, or 7-ketocholesterol. *FEBS Lett.* **440**(3), 434-439 (1998).
4. Kim, S.M., Kim, B.Y., Son, Y., et al. 7 $\alpha$ -Hydroxycholesterol induces inflammation by enhancing production of chemokine (C-C motif) ligand 2. *Biochem. Biophys. Res. Commun.* **467**(4), 879-884 (2015).
5. Hultén, L.M., Lindmark, H., Diczfalusy, U., et al. Oxysterols present in atherosclerotic tissue decrease the expression of lipoprotein lipase messenger RNA in human monocyte-derived macrophages. *J. Clin. Invest.* **97**(2), 461-468 (1996).

#### 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.

#### WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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