

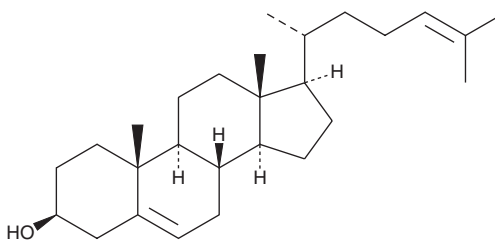
# PRODUCT INFORMATION



## 24-dehydro Cholesterol

Item No. 14943

**CAS Registry No.:** 313-04-2  
**Formal Name:** (3 $\beta$ )-cholesta-5,24-dien-3-ol  
**Synonyms:** Desmosterol, NSC 226126  
**MF:** C<sub>27</sub>H<sub>44</sub>O  
**FW:** 384.6  
**Purity:**  $\geq$ 98%  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:**  $\geq$ 2 years



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

### Laboratory Procedures

24-dehydro Cholesterol is supplied as a crystalline solid. A stock solution may be made by dissolving the 24-dehydro cholesterol in the solvent of choice. 24-dehydro Cholesterol is soluble in organic solvents such as ethanol and dimethyl formamide, which should be purged with an inert gas. The solubility of 24-dehydro cholesterol in these solvents is approximately 0.25 and 50 mg/ml, respectively.

24-dehydro Cholesterol is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

### Description

24-dehydro Cholesterol is an immediate precursor to cholesterol in the Bloch pathway of cholesterol biosynthesis. Structurally, it varies from cholesterol only by a single double bond at carbon 24 and has been used as cholesterol substitute in cellular membrane studies.<sup>1</sup> During brain development, 24-dehydro cholesterol transiently accumulates, composing up to 30% of total brain sterol, where it is poised to rapidly enrich membrane sterols.<sup>2</sup> However, defects in cholesterol synthesis can lead to a condition called, desmosterolosis, which results in an accumulation of excess 24-dehydro cholesterol.<sup>3</sup> 24-dehydro Cholesterol has been reported to activate liver X receptor-target genes in both the liver of cholesterol-free mice and in cholesterol-starved macrophage foam cells in atherosclerotic lesions.<sup>4-5</sup>

### References

1. Huster, D., Scheidt, H.A., Arnold, K., *et al.* Desmosterol may replace cholesterol in lipid membranes. *Biophys. J.* **88**(3), 1838-1844 (2005).
2. Jansen, M., Wang, W., Greco, D., *et al.* What dictates the accumulation of desmosterol in the developing brain? *FASEB J.* **27**(3), 865-870 (2013).
3. Clayton, P.T. Disorders of cholesterol biosynthesis. *Arch. Dis. Child.* **78**(2), 185-189 (1998).
4. Heverin, M., Meaney, S., Brafman, A., *et al.* Studies on the cholesterol-free mouse: Strong activation of LXR-regulated hepatic genes when replacing cholesterol with desmosterol. *Arterioscler. Thromb. Vasc. Biol.* **27**(10), 2191-2197 (2007).
5. Spann, N.J., Garmire, L.X., McDonald, J.G., *et al.* Regulated accumulation of desmosterol integrates macrophage lipid metabolism and inflammatory responses. *Cell* **151**(1), 138-152 (2012).

#### 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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