

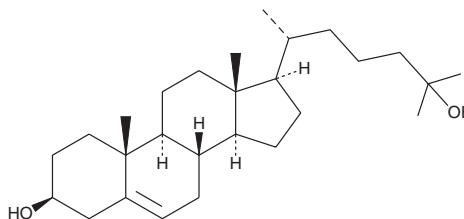
# PRODUCT INFORMATION



## 25-hydroxy Cholesterol

Item No. 11097

**CAS Registry No.:** 2140-46-7  
**Formal Name:** cholest-5-ene-3 $\beta$ ,25-diol  
**MF:** C<sub>27</sub>H<sub>46</sub>O<sub>2</sub>  
**FW:** 402.7  
**Purity:**  $\geq$ 98%  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:**  $\geq$ 4 years



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

### Laboratory Procedures

25-hydroxy Cholesterol is supplied as a crystalline solid. A stock solution may be made by dissolving the 25-hydroxy cholesterol in the solvent of choice, which should be purged with an inert gas. 25-hydroxy Cholesterol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 25-hydroxy cholesterol in ethanol and DMF is approximately 20 and 2 mg/ml, respectively and approximately 100  $\mu$ g/ml in DMSO.

25-hydroxy Cholesterol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 25-hydroxy cholesterol should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. 25-hydroxy Cholesterol has a solubility of approximately 500  $\mu$ g/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

25-hydroxy Cholesterol is an oxysterol.<sup>1</sup> It is formed from cholesterol by cholesterol-25-hydroxylase, and its production can be induced by inflammation or infection.<sup>2</sup> 25-hydroxy Cholesterol suppresses endogenous cholesterol synthesis by binding to insulin-induced gene (INSIG) proteins and preventing sterol regulatory element binding proteins (SREBPs) from being transported to the Golgi. It inhibits IgA class switching induced by LPS and various cytokines in B cells (IC<sub>50</sub> = ~50 nM).<sup>3</sup> 25-hydroxy Cholesterol inhibits replication of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Vero cells (EC<sub>50</sub> = 3.675  $\mu$ M) and reduces increases in viral protein production in infected Vero cells when used prior to infection.<sup>4</sup> It reduces viral RNA loads in the lung and trachea in a mouse model of SARS-CoV-2 infection when administered at a dose of 100 mg/kg per day. Serum levels of 25-hydroxy cholesterol are increased in mice expressing human angiotensin-converting enzyme 2 (hACE2), the functional receptor for SARS-CoV-2, in a model of SARS-CoV-2 infection and in a patient with COVID-19, the primarily respiratory disease caused by SARS-CoV-2.

### References

1. Adams, C.M., Reitz, J., De Brabander, J.K., et al. *J. Biol. Chem.* **279**(50), 52772-52780 (2004).
2. Cystger, J.G., Dang, E.V., Reboldi, A., et al. *Nat. Rev. Immunol.* **14**(11), 731-743 (2014).
3. Bauman, D.R., Bitmansour, A.D., McDonald, J.G., et al. *Proc. Natl. Acad. Sci. USA* **106**(39), 16764-16769 (2009).
4. Zu, S., Deng, Y.-Q., Zhou, C., et al. *Cell Res.* 1-3 (2020).

#### 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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