



Product Information

1 α ,25-Dihydroxyvitamin D₃

Product Number **D 1530**

Storage Temperature 2-8 °C

Product Description

Molecular Formula: C₂₇H₄₄O₃

Molecular Weight: 416.6

CAS Number: 32222-06-3

λ_{\max} : 264 nm¹

Extinction Coefficient: E^{mm} = 19.0¹

Specific Rotation: +48° (1g/100 ml in methanol at 25 °C)¹

Synonyms: Calcitriol, 1 α ,25-Dihydroxyvitamin D₃

1 α ,25-Dihydroxycholecalciferol is the biologically active form of vitamin D₃.^{1,2}

This product is routinely used at 10⁻⁶ M to 10⁻¹² M in cell culture for inhibition studies on keratinocytes.³ This product has been shown to inhibit normal human keratinocyte cell growth by a mechanism that partly involves an increase in the release of transforming growth factor β (TGF- β).⁴

In addition, treatment of the human keratinocyte cell line HaCaT with this product resulted in the hydrolysis of sphingomyelin via Tumor Necrosis Factor α (TNF- α) with peak elevations of ceramide levels.⁵

Metabolism of this product can be studied using either pig kidney cells or rat intestinal cells. All known metabolites of this product can be analyzed using two consecutive normal-phase HPLC systems.³

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is slightly soluble in methanol, ethanol, ethyl acetate and tetrahydrofuran.¹ It is air and light sensitive.² For use in cell culture, this product was diluted into medium from 10 μ M stock solutions prepared in ethanol.⁵ For chromatographic analysis, this product can be dissolved in a mixture of hexane:isopropanol: acetic acid (87.4:12.3:0.3) (v:v:v) at 0.25 mg/ml.

Storage/Stability

This product is reported to be air- and light-sensitive. Therefore, solutions should be stored under an inert gas at -20 °C in the dark. Stock solutions of 1 mM in 95% ethanol are reported to be stable at -20 °C until needed for use.⁶

References

1. Merck Index, 11th ed. Entry# 1641.
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3. Napoli, J. L., et al., Induction, Inhibition, and Analysis of Vitamin D Metabolism in Cultured Cells. *Methods in Enzymology*, **206**, 491-501 (1991).
4. Haugen, J.D., et al., 1 α ,25-dihydroxyvitamin D₃ inhibits normal human keratinocyte growth by increasing transforming growth factor- β 2 release. *Biochem. Biophys. Res. Commun.*, **229**, 618-623 (1996).
5. Geilen, C.C., et al., 1 α ,25-dihydroxyvitamin D₃ induces sphingomyelin hydrolysis in HaCaT cells via tumor necrosis factor- α . *J. Biol. Chem.*, **272**, 8997-9001 (1997).
6. Daynes, R.A., et al., Induction of common mucosal immunity by hormonally immunomodulated peripheral immunization. *Infect. Immun.*, **64**, 1100-1109 (1996).

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