

PRODUCT INFORMATION



Calcitriol

Item No. 71820

CAS Registry No.: 32222-06-3

Formal Name: (1R,3S,5Z)-4-methylene-5-[(2E)-2-[[1R,3aS,7aR]-octahydro-1-[(1R)-5-hydroxy-1,5-dimethylhexyl]-7a-methyl-4H-inden-4-ylidene]ethylidene]-1,3-cyclohexanediol

Synonyms: 1,25-dihydroxy Cholecalciferol, 1 α ,25-dihydroxy Cholecalciferol, 1,25-dihydroxy Vitamin D₃, 1 α ,25-dihydroxy Vitamin D₃

MF: C₂₇H₄₄O₃

FW: 416.6

Purity: \geq 97%

UV/Vis.: λ_{\max} : 214, 265 nm

Supplied as: A crystalline solid

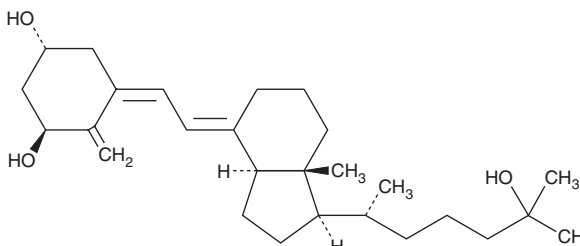
Storage: -20°C

Stability: \geq 4 years

Special Conditions: Product is light sensitive and air sensitive. Handle under inert conditions.

Item Origin: Synthetic

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



Laboratory Procedures

Calcitriol is supplied as a crystalline solid. A stock solution may be made by dissolving the calcitriol in the solvent of choice, which should be purged with an inert gas. Calcitriol is soluble in organic solvents such as ethanol, methanol, and DMSO. The solubility of calcitriol in ethanol is approximately 1 mg/ml and approximately 50 mg/ml in methanol and DMSO.

Description

Calcitriol is a vitamin D₃ receptor agonist and active metabolite of vitamin D₃ (Item No. 11792).^{1,2} It is formed via a multi-step process, in which vitamin D₃ undergoes hydroxylation to 25-hydroxy vitamin D₃ (Item No. 9000683) in the liver, followed by further hydroxylation at the 1 α -position in the kidney. Calcitriol binds to the vitamin D₃ receptor (K_d = 16 pM) and induces differentiation of U937 acute monocytic leukemia cells (EC₅₀ = 2,000 pM).³ It induces cell cycle arrest at the S phase and apoptosis in primary adenomatous and hyperplastic human parathyroid cells when used at a concentration of 10 nM.⁴ Calcitriol (0.65 nmol/animal) increases bone calcium mobilization in chicks on a low calcium diet.² It stimulates calcium absorption in the intestines in a chick model of rickets induced by a vitamin D₃-deficient diet when administered at a dose of 25 μ g/animal.¹ Formulations containing calcitriol have been used in the treatment of hypocalcemia.

References

1. Lawson, D.E., Fraser, D.R., Kodicek, E., *et al.* *Nature* **230(5291)**, 228-230 (1971).
2. Haussler, M.R., Zerwekh, J.E., Hesse, R.H., *et al.* *Proc. Natl. Acad. Sci. USA* **70(8)**, 2248-2252 (1973).
3. Binderup, L., Latini, S., Binderup, E., *et al.* *Biochem. Pharmacol.* **42(8)**, 1569-1575 (1991).
4. Canalejo, A., Almadén, Y., Torregrosa, V., *et al.* *J. Am. Soc. Nephrol.* **11(10)**, 1865-1872 (2000).

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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