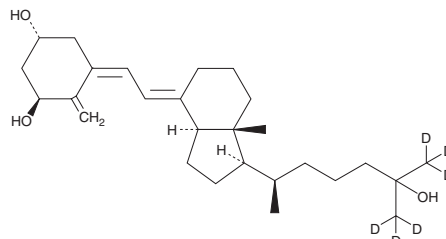


PRODUCT INFORMATION



Calcitriol-d₆ Item No. 22179

CAS Registry No.: 78782-99-7
Formal Name: (1R,3S,5Z)-4-methylene-5-[(2E)-2-[(1R,3aS,7aR)-octahydro-1-[(1R)-5-hydroxy-1-methyl-5-(methyl-d₃)hexyl-6,6,6-d₃]-7a-methyl-4H-inden-4-ylidene]ethylidene]-1,3-cyclohexanediol
Synonyms: 1,25-dihydroxy Cholecalciferol-d₆,
1α,25-dihydroxy Cholecalciferol-d₆,
Ro 21-5535/2, 1,25-dihydroxy Vitamin D₃-d₆,
1α,25-dihydroxy Vitamin D₃-d₆
MF: C₂₇H₃₈D₆O₃
FW: 422.7
Chemical Purity: ≥90% (Calcitriol)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₆); ≤1% d₀
Supplied as: A solid
Storage: 4°C
Stability: ≥4 years



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

Laboratory Procedures

Calcitriol-d₆ is intended for use as an internal standard for the quantification of calcitriol (Item No. 71820) 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).

Calcitriol-d₆ is supplied as a solid. A stock solution may be made by dissolving the calcitriol-d₆ in the solvent of choice, which should be purged with an inert gas. Calcitriol-d₆ is soluble in organic solvents such as DMSO and chloroform.

Description

Calcitriol is a vitamin D₃ receptor agonist and an 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 1α-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 µg/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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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM