

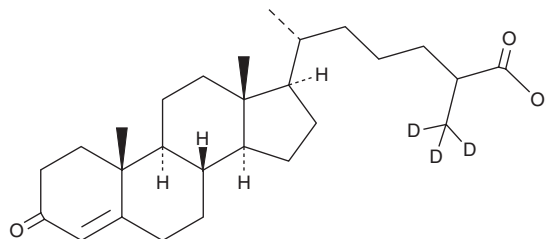
PRODUCT INFORMATION



Δ^4 -Dafachronic Acid-d₃

Item No. 31009

Formal Name: 3-oxo-cholest-4-en-26-oic-27,27,27-d₃ acid
Synonyms: 3-keto-4-Cholestenic Acid-d₃, Δ^4 -DA-d₃
MF: C₂₇H₃₉D₃O₃
FW: 417.6
Chemical Purity: ≥98% (Δ^4 -Dafachronic Acid)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₃); ≤1% d₀
UV/Vis.: λ_{max}: 241 nm
Supplied as: A solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

Δ^4 -Dafachronic acid-d₃ is intended for use as an internal standard for the quantification of Δ^4 -dafachronic acid (Item No. 14100) 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).

Δ^4 -Dafachronic acid-d₃ is supplied as a solid. A stock solution may be made by dissolving the Δ^4 -dafachronic acid-d₃ in the solvent of choice, which should be purged with an inert gas. Δ^4 -Dafachronic acid-d₃ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of Δ^4 -dafachronic acid-d₃ in these solvents is approximately 12.5, 2.5, and 5 mg/ml, respectively.

Description

Δ^4 -Dafachronic acid is a racemic mixture of the sterol-derived hormones (25R)- Δ^4 -dafachronic acid and (25S)- Δ^4 -dafachronic acid, ligands of *C. elegans* nuclear hormone receptor family member DAF-12, a nucleoreceptor involved in dauer diapause, reproductive development, fat metabolism, and lifespan.^{1,2} Δ^4 -Dafachronic acid is an agonist of DAF-12 and a metabolite of cholesterol (Item No. 9003100) in *C. elegans*.^{3,4} It induces transactivation of DAF-12 in NIH3T3 cells expressing the *C. elegans* or *D. immitis* receptor (EC₅₀s = 81 and 0.65 nM, respectively).³ Δ^4 -Dafachronic acid induces molting of infective *D. immitis* (heartworm) third-stage larvae into L4 larvae, which is the first stage of the parasitic life cycle in dogs. It also induces the escape trajectory in embryos of the annual killifish *A. limnaeus* at 25°C, a condition that favors entrance into diapause, when used at a concentration of 75 μM.⁵

References

1. Sharma, K.K., Wang, Z., Motola, D.L., et al. *Mol. Endocrinol.* **23**(5), 640-648 (2009).
2. Motola, D.L., Cummins, C.L., Rottiers, V., et al. *Cell* **124**, 1209-1223 (2006).
3. Long, T., Alberich, M., André, F., et al. *Sci. Rep.* **10**(1), 11207 (2020).
4. Witting, M., Rudloff, H.-C., Thondamal, M., et al. *J. Chromatogr. B. Analyt. Technol. Biomed. Life Sci.* **978-979**, 118-121 (2015).
5. Romney, A.L.T., Davis, E.M., Corona, M.M., et al. *Proc. Natl. Acad. Sci. USA* **115**(50), 12763-12768 (2018).

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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