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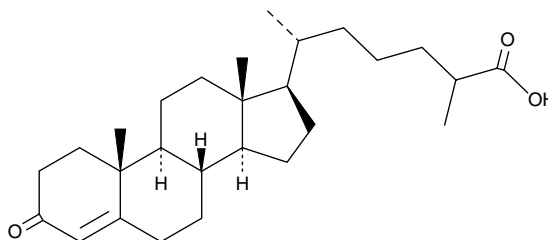
Product Information



Δ^4 -Dafachronic Acid

Item No. 14100

CAS Registry No.:	23017-97-2
Formal Name:	3-oxo-cholest-4-en-26-oic acid
Synonym:	3-keto-4-Cholestenoic Acid
MF:	C ₂₇ H ₄₂ O ₃
FW:	414.6
Purity:	≥95%
Stability:	≥2 years at -20°C
Supplied as:	A crystalline solid
UV/Vis.:	λ_{max} : 241 nm



Laboratory Procedures

For long term storage, we suggest that Δ^4 -dafachronic acid be stored as supplied at -20°C. It should be stable for at least two years.

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

Δ^4 -Dafachronic acid is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, Δ^4 -dafachronic acid should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. Δ^4 -Dafachronic acid has a solubility of approximately 0.09 mg/ml in a 1:10 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

During unfavorable environmental conditions, *C. elegans* larvae undergo arrest and form dauer larvae that can attach to other animals as a parasitic strategy for survival.^{1,2} DAF-12 is an orphan nuclear hormone receptor that regulates dauer larva diapause, reproductive development, fat metabolism, and life cycle/longevity in *C. elegans*.³⁻⁵ DAF-12 is required for entry into dauer when it is not bound to ligand by acting as a transcriptional repressor of target genes that favor reproductive development. Δ^4 -Dafachronic acid is a racemic version of a sterol-derived hormone that acts as a ligand of DAF-12.^{3,6-8} Δ^4 -Dafachronic acid binds to and transactivates DAF-12, rescuing hormone deficiency in transgenic dauer larvae and promoting reproductive maturation into adults.^{1,6,9} The (25S) diastereomer of Δ^4 -dafachronic acid is significantly more potent than its (25R) counterpart (EC₅₀s = 23 and 66 nM, respectively).⁷

References

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2. Wang, Z., Zhou, X.E., Motola, D.L., *et al. Proc. Natl. Acad. Sci. USA* **106**(23), 9138-9143 (2009).
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9. Martin, R., Entchev, E.V., Kurzchalia, T.V., *et al. Org. Biomol. Chem.* **8**, 739-750 (2010).

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