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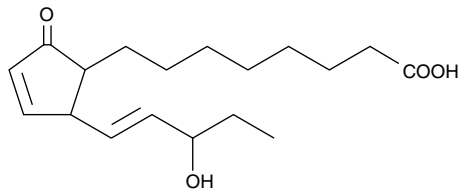
Product Information



A₁-Phytprostane-I

Item No. 9000593

CAS Registry No.: 1035557-09-5
Formal Name: 2-(3-hydroxy-1-penten-1-yl)-5-oxo-3-cyclopentene-1-octanoic acid
Synonyms: 16-A₁-Phytprostane, Phytprostane A₁, PPA₁
MF: C₁₈H₂₈O₄
FW: 308.4
Purity: ≥90% (*trans* isomer mix)
Stability: ≥1 year at -20°C
Supplied as: A solution in methyl acetate
UV/Vis.: λ_{max}: 217 nm



Laboratory Procedures

For long term storage, we suggest that A₁-phytprostane-I be stored as supplied at -20°C. It should be stable for at least one year.

A₁-Phytprostane-I is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide (DMF) purged with an inert gas can be used. The solubility of A₁-phytprostane-I in ethanol is approximately 10 mg/ml and approximately 20 mg/ml in DMSO and DMF.

A₁-Phytprostane-I is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the methyl acetate solution of A₁-phytprostane-I should be diluted with the aqueous buffer of choice. A₁-Phytprostane-I has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

A₁-Phytprostane-I is a cyclopentenone isoprostane produced by the action of reactive oxygen species on α-linolenic acid in plants.¹⁻³ There are two A₁-phytprostanes, both having the single ketone group on the ring structure. This isoform results from cyclization between carbons 9 and 13 of linolenic acid, as opposed to carbons 3 and 7 in A₁-phytprostane-II. A₁-Phytprostanes induce the expression of glutathione-S-transferase, increase phytoalexin biosynthesis, and trigger the expression of several genes involved in primary and secondary metabolism in plants.^{1,3,4}

References

1. Thoma, I., Loeffler, C., Sinha, A.K., *et al.* Cyclopentenone isoprostanes induced by reactive oxygen species trigger defense gene activation and phytoalexin accumulation in plants. *Plant J.* **34**(3), 363-375 (2003).
2. Jahn, U., Galano, J.-M., and Durand, T. Beyond prostaglandins--chemistry and biology of cyclic oxygenated metabolites formed by free-radical pathways from polyunsaturated fatty acids. *Angew. Chem. Int. Ed.* **47**, 5894-5955 (2008).
3. Mueller, M.J. and Berger, S. Reactive electrophilic oxylipins: Pattern recognition and signalling. *Phytochem.* **70**, 1511-1521 (2009).
4. Dueckershoff, K., Mueller, S., Mueller, M.J., *et al.* Impact of cyclopentenone-oxylipins on the proteome of *Arabidopsis thaliana*. *Biochim. Biophys. Acta.* **1784**, 1975-1985 (2008).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/9000593

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY; NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

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