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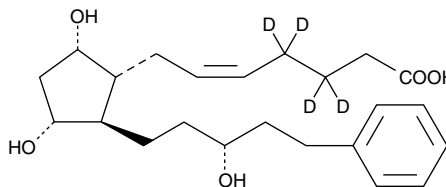
Product Information



Latanoprost (free acid)-d₄

Item No. 316811

CAS Registry No.: 1224443-47-3
Formal Name: 9 α ,11 α ,15S-trihydroxy-17-phenyl-18,19,20-trinor-prost-5Z-en-1-oic-3,3',4,4'-d₄ acid
Synonyms: 17-phenyl-13,14-dihydro trinor Prostaglandin F_{2 α} -d₄, PhXA 85-d₄, Lat-FA-d₄
MF: C₂₃H₃₀D₄O₅
FW: 394.5
Chemical Purity: \geq 98%
Deuterium Incorporation: \geq 99% deuterated forms (d₁-d₄); \leq 1% d₀
Stability: \geq 1 year at -20°C
Supplied as: A solution in methyl acetate



Laboratory Procedures

Latanoprost (free acid)-d₄ (Lat-FA-d₄) contains four deuterium atoms at the 3, 3', 4, and 4' positions. It is intended for use as an internal standard for the quantification of latanoprost (free acid) by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that Lat-FA-d₄ be stored as supplied at -20°C. It will be stable for at least one year.

Lat-FA-d₄ 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 Lat-FA-d₄ in these solvents is approximately 100 mg/ml in ethanol and approximately 50 mg/ml in DMSO and DMF.

Lat-FA-d₄ is used as an internal standard for the quantification Lat-FA-d₄ by stable isotope dilution 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 Lat-FA-d₄ by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Latanoprost is an F-series prostaglandin (PG) analog which has been approved for use as an ocular hypotensive drug.¹ It is the isopropyl ester of a PGF_{2 α} analog containing an aromatic group (17-phenyl) in the ω -chain. As an isopropyl ester, latanoprost acts as a prodrug which is converted to Lat-FA by endogenous esterase enzymes. Lat-FA is a potent FP receptor agonist with an EC₅₀ value of 3.6 nM for human FP receptors, which is twice the potency of PGF_{2 α} and more than 200 times more potent latanoprost.² The efficacy of PG analog esters for the treatment of glaucoma correlates closely with the FP receptor binding affinity of the free acid.³ However, Lat-FA is more irritating and less effective than the prodrug latanoprost when applied directly to the eyes of human glaucoma patients.⁴

References

1. Stjernschantz, J. and Resul, B. Phenyl substituted prostaglandin analogs for glaucoma treatment. *Drugs of the Future* **17**, 691-704 (1992).
2. Abramovitz, M., Adam, M., Boie, Y., *et al.* The utilization of recombinant prostanoid receptors to determine the affinities and selectivities of prostaglandins and related analogs. *Biochim. Biophys. Acta* **1483**, 285-293 (2000).
3. Camras, C.B., Alm, A., Watson, P., *et al.* Latanoprost, a prostaglandin analog, for glaucoma therapy. Efficacy and safety after 1 year of treatment in 198 patients. *Ophthalmology* **103**, 1916-1924 (1996).
4. Sugamoto, K., Matsushita, Y., and Matsui, T. Facile and general method for preparation of (E)-4-hydroxy-2-alkenals. *Lipids* **32**, 903-905 (1997).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/316811

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

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