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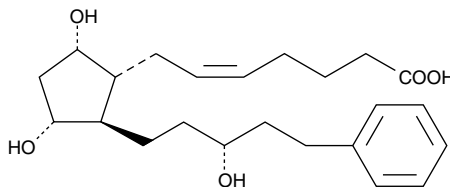
Product Information



Latanoprost (free acid)

Item No. 16811

CAS Registry No.: 41639-83-2
Formal Name: 9 α ,11 α ,15R-trihydroxy-17-phenyl-18,19,20-trinor-prost-5Z-en-1-oic acid
Synonyms: Lat-FA, 17-phenyl-13,14-dihydro trinor Prostaglandin F_{2 α} , PhXA-85
MF: C₂₃H₃₄O₅
FW: 390.5
Purity: \geq 98%
Stability: \geq 2 years at -20°C
Supplied as: A solution in methyl acetate



Laboratory Procedures

For long term storage, we suggest that latanoprost (free acid) (Lat-FA) be stored as supplied at -20°C. It will be stable for at least two years.

Lat-FA 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 purged with an inert gas can be used. The solubility of Lat-FA in these solvents is approximately 100 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. If an organic solvent-free solution of Lat-FA is needed, it can be prepared by evaporating the methyl acetate and directly dissolving the neat oil in aqueous buffers. The solubility of Lat-FA in PBS (pH 7.2) is approximately 0.8 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Latanoprost is an F-series prostaglandin analog which has been approved for use as an ocular hypotensive drug.¹ Latanoprost is an isopropyl ester, a prodrug form which is converted to Lat-FA by endogenous esterase enzymes. The free acid form is 200 times more potent than latanoprost as an FP receptor ligand for the human recombinant FP receptor.²

Latanoprost is the isopropyl ester of a prostaglandin F_{2 α} (PGF_{2 α}) analog containing an aromatic group (17-phenyl) in the ω -chain. Lat-FA is the corresponding carboxylic acid of this analog. Lat-FA is a potent FP receptor agonist with an EC₅₀ of 3.6 nM for human FP receptors, which is twice the potency of PGF_{2 α} . The efficacy of prostaglandin 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/16811

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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