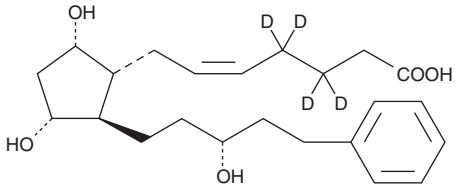
PRODUCT INFORMATION

Latanoprost (free acid)-d_4

Item No. 316811

CAS Registry No.:	1224443-47-3
Formal Name:	9α,11α,15R-trihydroxy-17-phenyl-18,19,20-trinor-prost-5Z-en-1-oic-3,3,4,4-d_4 acid
Synonyms:	17-phenyl-13,14-dihydro trinor Prostaglandin $F_{2\alpha}$–d_4, PhXA 85-d_4, Lat-FA-d_4
MF:	$C_{23}H_{30}D_4O_5$
FW:	394.5
Chemical Purity:	≥98% (Latanoprost (free acid))
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_4); ≤1% d_0
Supplied as:	A solution in methyl acetate
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

Latanoprost (free acid)-d_4 is intended for use as an internal standard for the quantification of latanoprost (free acid) (Item No. 16811) 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).

Latanoprost (free acid)-d_4 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 latanoprost (free acid)-d_4 in ethanol is approximately 100 mg/ml and approximately 50 mg/ml in DMSO and DMF.

Description

Latanoprost (free acid)-d_4 is intended for use as an internal standard for the quantification of latanoprost (free acid) (Item No. 16811) by GC- or LC-MS. Latanoprost (free acid) is a derivative of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$; Item Nos. 16010 | 16020), an FP receptor agonist, and an active metabolite of the prodrug latanoprost (Item No. 16812).[1] It selectively binds to the FP receptor (K_i = 0.098 µM) over the EP_1, EP_2, EP_3, and EP_4 receptors (K_is = 2.06, 39.667, 7.519, and 75 µM, respectively), as well as the DP, IP, and TP receptors (K_is = ≥20, ≥90, and ≥60 µM, respectively). It induces phosphoinositide turnover in isolated human ciliary muscle and human trabecular meshwork cells, mouse NIH3T3 fibroblasts, and rat A7r5 vascular smooth muscle cells, which all endogenously express FP receptors (EC_{50}s = 124, 35, 32, and 35 nM, respectively), as well as HEK293 cells expressing human ocular FP receptors (EC_{50} = 45.7 nM). It also increases intracellular calcium levels in hEP_1-5/293-AEQ17 cells expressing EP_1 receptors in an aequorin-based calcium assay (EC_{50} = 119 nM).[2] Latanoprost (free acid) induces contraction of isolated cat iris sphincter smooth muscle (EC_{50} = 29.9 nM).[3]

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References

1. Sharif, N.A., Kelly, C.R., Crider, J.Y., *et al.* Ocular hypotensive FP prostaglandin (PG) analogs: PG receptor subtype binding affinities and selectivities, and agonist potencies at FP and other PG receptors in cultured cells. *J. Ocul. Pharmacol. Ther.* **19(6),** 501-515 (2003).
2. Gurney, M.E., Nugent, R.A., Mo, X., *et al.* Design and synthesis of selective phosphodiesterase 4D (PDE4D) allosteric inhibitors for the treatment of Fragile X Syndrome and other brain disorders. *J. Med. Chem.* **62(10),** 4884-4901 (2019).
3. Sharif, N.A., Kaddour-Djebbar, I., and Abdel-Latif, A.A. Cat iris sphincter smooth-muscle contraction: Comparison of FP-class prostaglandin analog agonist activities. *J. Ocul. Pharmacol. Ther.* **24(2),** 152-163 (2008).

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