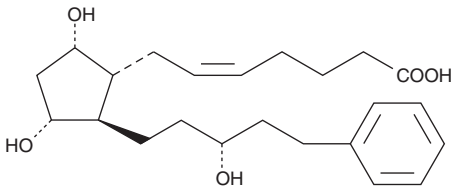
PRODUCT INFORMATION

Latanoprost (free acid)

Item No. 16811

CAS Registry No.: 41639-83-2
Formal Name: (5Z)-7-[(1R,2R,3R,5S)-3,5-dihydroxy-2-[(3R)-3-hydroxy-5-phenylpentyl]cyclopentyl]-5-heptenoic acid
Synonyms: Lat-FA, PhXA-85, 17-phenyl-13,14-dihydro trinor Prostaglandin $F_{2\alpha}$
MF: $C_{23}H_{34}O_5$
FW: 390.5
Purity: ≥98%
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) 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 latanoprost (free acid) in these solvents is approximately 100 mg/ml.

Latanoprost (free acid) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the methyl acetate solution of latanoprost (free acid) should be diluted with the aqueous buffer of choice. The solubility of latanoprost (free acid) in PBS (pH 7.2) is approximately 0.8 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

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]

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. Ungrin, M.D., Carrière, M.C., Denis, D., *et al*. Key structural features of prostaglandin E_2 and prostanoid analogs involved in binding and activation of the human EP_1 prostanoid receptor. *Mol. Pharmacol.* **59(6)**, 1446-1456 (2001).
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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