FT-Q8575F

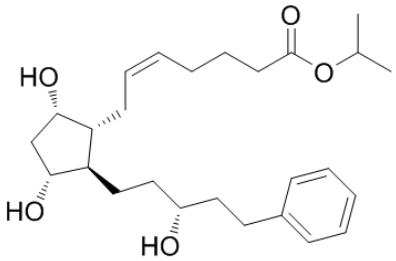
Latanoprost

Product Description

Product Name: **Latanoprost** (PHXA41)

Synonyms: 17-phenyl-13,14-dihydrotrinor PGF2α isopropyl ester; 17-phenyl13,14-dihydro trinor Prostaglandin F2αisopropyl ester; 9α,11α,15R-trihydroxy-17-phenyl-18, 19,20-trinor-prost-5Z-en-1-oic acid, isopropyl ester; PHXA41; Lat-FA; CAY530500

Cat Number : Q8575F, 5mg Q8575G, 10mg
Q8575S, 50mg Q8575Y, 100mg
AX9N80, 1ml at 10mM in DMSO.



CAS: 130209-82-4

Molecular Weight: 432.59

Identitgy (^{1}H NMR, LCMS): Conform

Purity (LCMS): >95% (typical values 97%)

Solubility: in DMSO : >100 mg/mL (231.17 mM)
in aquous buffers:
≥ 2.5 mg/mL (5.78 mM); Clear solution in 10% DMSO 40% PEG300 5% Tween-80 45% saline; in 10% DMSO 90% (20% SBE-β-CD in saline); and in 10% DMSO 90% corn oil .
400 μg/ml in a 1:4 solution of ethanol:PBS (pH 7.2)

Targets: FP prostanoid receptor

Storage: Powder : Store at -20°C for 3 years, at 4°C for 2 years (M)
In solvent : Store at -80°C for 6 months, at -20°C for 1 month

Description:

Latanoprost is an agonist for the FP prostanoid receptor, and lowers intraocular-pressure (IOP).

IC50 & Target[5]

Technical and Scientific Information

Biological activity - In Vitro

Benzalkonium chloride latanoprost (BAK-latanoprost) and 0.02% BAK induce significant apoptosis in the apical layers that correlated with the significant decrease of cell viability. Preservative-free latanoprost (PF-latanoprost) slightly decreases cell viability and few apoptotic cells are found in the superficial layers, without reaching statistical significance compared with PBS[1]. Latanoprost (0.1 μM) significantly increases cell viability as compared with control. Meanwhile, 0.1 μM latanoprost results in the obvious promotion of neurite outgrowth similar to ciliary neurotrophic factor (CNTF) and simultaneously increases the levels of p-Akt and p-mTOR expression. Latanoprost can promote neurite outgrowth through an FP receptor-mediated modulation of the PI3K-Akt-mTOR signaling pathway[3]. Latanoprost (0.03 or 0.3 μg/mL) and bimatoprost increase MMP-9 activity by 75% ± 27% and 75% ± 24%, respectively, in human CBSM cells[4].

Biological activity - In Vivo

A single drop of latanoprost results in marked miosis, anterior bowing of the peripheral iris, narrowing of the iridocorneal angle, and shallowing of the anterior chamber of the beagle dog. Following latanoprost, the pupil diameter, ACA, and AOD (means) decreases 84%, 14%, and 16%, respectively[2].

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Protocol :

Solvent and solubility

- **Invitro**

A stock solution may be made by dissolving the Latanoprost in DMSO as follows.

DMSO :

Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.3117 mL	11.5583 mL	23.1166 mL
5 mM	0.4623 mL	2.3117 mL	4.6233 mL
10 mM	0.2312 mL	1.1558 mL	2.3117 mL

Solvents such as ethanol, DMSO, and dimethyl formamide (DMF) purged with an inert gas can be used. Methyl acetate can also be used (can be evaporated). Latanoprost is miscible in ethanol and has a solubility of approximately 50 mg/ml in DMSO and approximately 100 mg/ml in DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. In acidic or basic aqueous solutions latanoprost is stable for no more than 48 hours and in neutral aqueous solutions it has shown to be stable for up to one month at room temperature.

References:

[1]. Pauly A, et al. In vitro and in vivo comparative toxicological study of a new preservative-free latanoprost formulation. Invest Ophthalmol Vis Sci. 2012 Dec 13;53(13):8172-80.

[2]. Tsai S, et al. The effect of topical latanoprost on anterior segment anatomic relationships in normal dogs. Vet Ophthalmol. 2013 Sep;16(5):370-6.

[3]. Zheng J, et al. Latanoprost promotes neurite outgrowth in differentiated RGC-5 cells via the PI3K-Akt-mTOR signaling pathway. Cell Mol Neurobiol. 2011 May;31(4):597-604.

[4]. Ooi YH, et al. Effect of bimatoprost, latanoprost, and unoprostone on matrix metalloproteinases and their inhibitors in human ciliary body smooth muscle cells. Invest Ophthalmol Vis Sci. 2009 Nov;50(11):5259-65.

[5]. B'Ann True Gabelt, et al. Prostaglandin Subtype-Selective and Non-Selective IOP-Lowering Comparison in Monkeys.

Related products

15-S LATANOPROST #T9085

15-KETO LATANOPROST (FREE ACID) #S0033

15-KETO LATANOPROST #T7759

5-TRANS LATANOPROST (FREE ACID) #AYI13

5-TRANS LATANOPROST #Q8576

LATANOPROST (FREE ACID) #Q8574 CAS:41639-83-2

LATANOPROST ETHYL AMIDE #S0036

LATANOPROST LACTOL #S0354

LATANOPROST LACTONE DIOL #S0353

Ordering information

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