

Product data sheet



MedKoo Cat#: 318089 Name: Latanoprost, ethanol solution CAS: 130209-82-4 (ethanol solution) Chemical Formula: C ₂₆ H ₄₀ O ₅ Exact Mass: 432.2876 Molecular Weight: 432.5928		
Product supplied as:	Powder	
Purity (by HPLC):	≥ 98%	
Shipping conditions	Ambient temperature	
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

1. Product description:

Latanoprost, also known as PHXA41 and XA34, is a prostaglandin analogue (more specifically an analogue of prostaglandin F_{2α}) that lowers the pressure by increasing the outflow of aqueous fluid from the eyes through the uveascleral tract. Latanoprost is an isopropyl ester prodrug, meaning it is inactive until it is hydrolyzed by esterases in the cornea to the biologically active acid. Latanoprost, in pure form, is an oily liquid. For the convenience of use, it is supplied as 200mg / mL in ethanol.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	100.0	231.16
Ethanol	100.0	231.16
Water	100.0	231.16

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.31 mL	11.56 mL	23.12 mL
5 mM	0.46 mL	2.31 mL	4.62 mL
10 mM	0.23 mL	1.56 mL	2.31 mL
50 mM	0.05 mL	0.23 mL	0.46 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Shen JW, Shan M, Peng YY, Fan TJ. Cytotoxic Effect of Latanoprost on Human Corneal Stromal Cells in vitro and its Possible Mechanisms. *Curr Eye Res.* 2017 Apr;42(4):534-541. doi: 10.1080/02713683.2016.1225770. Epub 2016 Oct 17. PMID: 27749098.

2. Smedowski A, Paterno JJ, Toropainen E, Sinha D, Wylegala E, Kaarniranta K. Excipients of preservative-free latanoprost induced inflammatory response and cytotoxicity in immortalized human HCE-2 corneal epithelial cells. *J Biochem Pharmacol Res.* 2014 Dec 1;2(4):175-184. PMID: 25530926; PMCID: PMC4270205.

In vivo study

1. Świątkiewicz M, Welniak-Kamińska M, Fiedorowicz M, Kamińska A, Rejdak R, Grieb P. Peripheral Latanoprost Administration Lowers Intraocular Pressure in the Wistar Rat. *Ophthalmol Ther.* 2020 Sep;9(3):1-8. doi: 10.1007/s40123-020-00256-8. Epub 2020 Aug 5. PMID: 32383108; PMCID: PMC7406633.

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2. Yang Y, Huang C, Lin X, Wu Y, Ouyang W, Tang L, Ye S, Wang Y, Li W, Zhang X, Liu Z. 0.005% Preservative-Free Latanoprost Induces Dry Eye-Like Ocular Surface Damage via Promotion of Inflammation in Mice. Invest Ophthalmol Vis Sci. 2018 Jul 2;59(8):3375-3384. doi: 10.1167/iops.18-24013. PMID: 30025085.

7. Bioactivity

Biological target:

Latanoprost (PHXA41) is a prostaglandin F2 α analogue and an agonist for the FP prostanoid receptor, and lowers intraocular-pressure (IOP).

In vitro activity

Latanoprost above concentrations of 3.125 mg/l can induce dose- and time-dependent morphological abnormality, growth retardation, viability decline, and plasma membrane permeability elevation of HCS cells. Moreover, latanoprost can arrest the cell cycle of these cells at S phase and induce PS externalization, DNA fragmentation, and apoptotic body formation of the cells. Furthermore, latanoprost can induce activation of caspase-3, -8 and -9; disruption of MTP; downregulation of anti-apoptotic Bcl-2; upregulation of pro-apoptotic Bax; and cytoplasmic cytochrome c release.

Reference: Curr Eye Res. 2017 Apr;42(4):534-541. <https://pubmed.ncbi.nlm.nih.gov/27749098/>

In vivo activity

Continuous subcutaneous infusion of latanoprost gradually decreased the IOP (intraocular pressure); the stable nadir of IOP, which was 20% lower than that prior to the start of infusion, was reached on day 3. Subcutaneous continuous delivery of latanoprost decreased the IOP in the conscious normotensive Wistar rats in this study.

Reference: Ophthalmol Ther. 2020 Sep;9(3):1-8. <https://pubmed.ncbi.nlm.nih.gov/32383108/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.