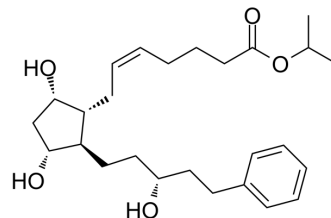


## Latanoprost

<b>Cat. No.:</b>	HY-B0577		
<b>CAS No.:</b>	130209-82-4		
<b>Molecular Formula:</b>	C <sub>26</sub> H <sub>40</sub> O <sub>5</sub>		
<b>Molecular Weight:</b>	432.59		
<b>Target:</b>	Prostaglandin Receptor		
<b>Pathway:</b>	GPCR/G Protein		
<b>Storage:</b>	Pure form	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



### SOLVENT & SOLUBILITY

#### In Vitro

H<sub>2</sub>O : 100 mg/mL (231.17 mM; Need ultrasonic)  
 Ethanol : 100 mg/mL (231.17 mM; Need ultrasonic)  
 DMSO : ≥ 100 mg/mL (231.17 mM)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		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

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: PBS  
Solubility: 100 mg/mL (231.17 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.08 mg/mL (4.81 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.08 mg/mL (4.81 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.08 mg/mL (4.81 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Latanoprost (PHXA41) is a prostaglandin F<sub>2α</sub> analogue and can be used for glaucoma research. Latanoprost can effectively pass through cornea and be hydrolyzed by esterase to latanoprost acid. latanoprost acid is an F-prostaglandin (FP) receptor

	agonist, and can effectively reduce intraocular pressure (IOP) by increasing the outflow of aqueous humor through uvea <sup>[1]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	FP Receptor
<b>In Vitro</b>	<p>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<sup>[1]</sup>. 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<sup>[3]</sup>. 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<sup>[4]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>In Vivo</b>	<p>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<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## PROTOCOL

### Cell Assay <sup>[1]</sup>

Cellular viability is evaluated in duplicate at 24 hours with the MTT assay. The 3D-HCEs are transferred to 24-well plates containing 300 μL of MTT solution diluted at 0.5 mg/mL in the culture medium, and 300 μL of the same MTT solution is applied on the apical surface of the 3D-HCEs. Reconstituted tissues are incubated for 3 hours at 37°C. Then they are transferred to 24-well plates containing 750-μL isopropanol, and 750-μL isopropanol is added to the apical surface of the 3D-HCEs. The plates are agitated for 2 hours at room temperature before reading the optical density (OD) at 570 nm versus OD 690 nm. The results are expressed as percentages of cell viability (mean ± SD) compared with the negative control (PBS). MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- Ocul Surf. 2023 Jun 7;S1542-0124(23)00055-1.

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## REFERENCES

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- [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.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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