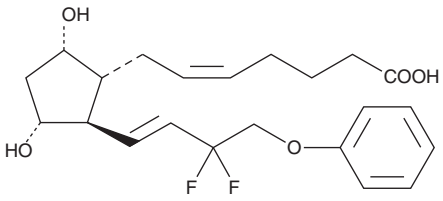
# PRODUCT INFORMATION

## Tafluprost (free acid)

*Item No. 10005439*

**CAS Registry No.:** 209860-88-8
**Formal Name:** (5Z)-7-[(1R,2R,3R,5S)-2-[(1E)-3,3-difluoro-4-phenoxy-1-buten-1-yl]-3,5-dihydroxycyclopentyl]-5-heptenoic acid
**Synonym:** AFP-172
**MF:** $C_{22}H_{28}F_2O_5$
**FW:** 410.5
**Purity:** ≥98%
**UV/Vis.:** $\lambda_{max}$: 269, 276 nm
**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

Tafluprost (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 tafluprost (free acid) in these solvents is approximately 30 mg/ml.

Tafluprost (free acid) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the methyl acetate solution of tafluprost (free acid) should be diluted with the aqueous buffer of choice. The solubility of tafluprost (free acid) in PBS (pH 7.2) is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Tafluprost (free acid) is an FP receptor agonist ($K_i$ = 4 nM for the human receptor), a derivative of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$; Item Nos. 16010 | 16020), and an active metabolite of the prodrug tafluprost (Item No. 10005440).[1] It is formed from tafluprost by hydrolysis and is selective for the FP receptor over the dopamine receptor and $PGE_2$ receptor subtypes $EP_1$ and $EP_2$, as well as a panel of 32 neurological receptors and transporters, at 1 µM. Tafluprost (free acid) induces constriction in isolated cat iris sphincters ($EC_{50}$ = 0.6 nM).[2] It also increases the proliferation and migration of, capillary formation by, and COX-2 levels in, human umbilical vein endothelial cells (HUVECs) when used at a concentration of 100 µM.[3]

### References


1. Takagi, Y., Nakajima, T., Shimazaki, A., *et al.* Pharmacological characteristics of AFP-168 (tafluprost), a new prostanoid FP receptor agonist, as an ocular hypotensive drug. *Exp. Eye Res.* **78(4)**, 767-776 (2004).
2. Nakajima, T., Matsugi, T., Goto, W., *et al.* New fluoroprostaglandin $F_{2\alpha}$ derivatives with prostanoid FP-receptor agonistic activity as potent ocular-hypotensive agents. *Biol. Pharm. Bull.* **26(12)**, 1691-1695 (2003).
3. Roh, Y.J., Park, Y.G., Kang, S., *et al.* Effects of AFP-172 on COX-2-induced angiogenic activities on human umbilical vein endothelial cells. *Graefes Arch. Clin. Exp. Ophthalmol.* **250(12)**, 1765-1775 (2012).





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