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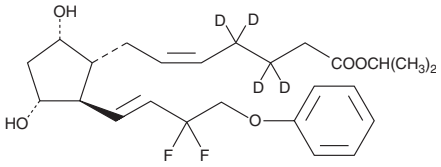
PRODUCT INFORMATION

Tafluprost-d_4

Item No. 9002405

Formal Name: 15,15-difluoro-9α,11α-dihydroxy-16-phenoxy-17,18,19,20-tetranor-prosta-5Z,13E-dien-1-oic-3',3',4',4'-d_4 acid, isopropyl ester
Synonym: AFP-168-d_4
MF: $C_{25}H_{30}D_4F_2O_5$
FW: 456.6
Chemcial Purity: ≥98% Tafluprost
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_4); ≤1% d_0
Stability: ≥1 year at -20°C
Supplied as: A solution in methyl acetate



Laboratory Procedures

Tafluprost-d_4 contains four deuterium atoms at the 3', 3', 4', and 4' positions. It is intended for use as an internal standard for the quantification of tafluprost (Item No. 10005440) by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that tafluprost-d_4 be stored as supplied at -20°C. It should be stable for at least one year.

Tafluprost-d_4 is supplied as a solution in ethyl acetate. To change the solvent, simply evaporate the tafluprost-d_4 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-d_4 in these solvents is approximately 30 mg/ml.

Tafluprost-d_4 is used as an internal standard for the quantification of tafluprost by stable isotope dilution MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Description

A number of 17-phenyl trinor prostaglandin $F_{2\alpha}$ (Item No. 16810) derivatives have been approved for the treatment of glaucoma.[1-4] Of these, the ones wherein the 13,14-double bond has been hydrogenated retain relatively good potency, but show a significantly reduced incidence of local irritant side effects.[5] Alternatively, it was recently reported that analogs incorporating a 15-deoxy-15,15-difluoro modification also had a favorable ophthalmic activity profile.[6] Tafluprost is a 2-series, 16-phenoxy analog of $PGF_{2\alpha}$ with the 15,15-difluoro substitution. Tafluprost free acid is a very potent FP receptor agonist, with a K_i value of 0.4 nM.[6] The ester prodrug forms of tafluprost are also potent ocular hypotensives in monkeys.

References

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5. Resul, B., Stjernschantz, J., No, K., *et al. J. Med. Chem.* **36**, 243-248 (1993).
6. Nakajima, T., Matsugi, T., Goto, W., *et al. Biol. Pharm. Bull.* **26(12)**, 1691-1695 (2003).

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