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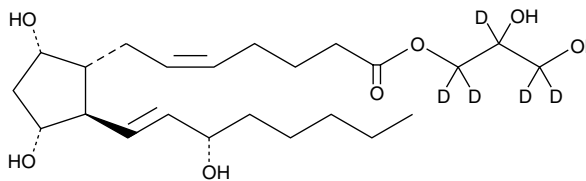
Product Information



Prostaglandin F_{2α}-1-glyceryl ester-d₅

Item No. 13883

Formal Name: 9α,11α,15S-trihydroxy-prosta-5Z,13E-dien-1-oic acid, 1-glyceryl ester-d₅
Synonym: PGF_{2α}-1-glyceryl ester-d₅
MF: C₂₃H₃₅D₅O₇
FW: 433.6
Chemical Purity: ≥98% PGF_{2α}-1-glyceryl ester
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₅); ≤1% d₀
Stability: ≥1 year at -20°C
Supplied as: A solution in acetonitrile



Laboratory Procedures

Prostaglandin F_{2α}-1-glyceryl ester-d₅ (PGF_{2α}-1-glyceryl ester-d₅) contains five deuterium atoms. It is intended for use as an internal standard for the quantification of PGF_{2α}-1-glyceryl ester by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that PGF_{2α}-1-glyceryl ester-d₅ be stored as supplied at -20°C. It should be stable for at least one year.

PGF_{2α}-1-glyceryl ester-d₅ is supplied as a solution in acetonitrile. To change the solvent, simply evaporate the acetonitrile under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide (DMF) purged with an inert gas can be used. The solubility of PGF_{2α}-1-glyceryl ester-d₅ in ethanol and DMF is approximately 30 mg/ml and approximately 20 mg/ml in DMSO.

PGF_{2α}-1-glyceryl ester-d₅ is used as an internal standard for the quantification of PGF_{2α}-1-glyceryl ester 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).

2-Arachidonoyl glycerol (2-AG) has been isolated from porcine brain, and has been characterized as the natural endocannabinoid ligand for the central cannabinoid receptor.^{1,2} Incubation of 2-AG with cyclooxygenase 2 and specific PGH₂ isomerases *in vitro* in cell culture and isolated enzyme preparations results in PG glyceryl ester formation.³ The biosynthesis of PGH, PGD, PGE, PGF, and thromboxane A-2-glyceryl ester compounds have all been documented. The 2-glyceryl ester moiety equilibrates rapidly (within minutes) with the more stable-1-glyceryl ester, producing a 10:90 2:-1-glyceryl ester mixture in typical aqueous media. While the stability and metabolism of PGF_{2α}-1-glyceryl ester has been investigated, little is known about its intrinsic biological activity.⁴

References

1. Sugiura, T., Kodaka, T., Kondo, S., *et al.* 2-Arachidonoylglycerol, a putative endogenous cannabinoid receptor ligand, induces rapid, transient elevation of intracellular free Ca²⁺ in neuroblastoma X glioma hybrid NG108-15 cells. *Biochem. Biophys. Res. Commun.* **229**, 58-64 (1996).
2. Sugiura, T., Kodaka, T., Kondo, S., *et al.* Is the cannabinoid CB₁ receptor a 2-arachidonoylglycerol receptor? Structural requirements for triggering a Ca²⁺ transient in NG108-15 cells. *J. Biochem.* **122**, 890-895 (1997).
3. Kozak, K.R., Crews, B.C., Morrow, J.D., *et al.* Metabolism of the endocannabinoids, 2-arachidonoylglycerol and anandamide, into prostaglandin, thromboxane, and prostacyclin glycerol esters and ethanolamides. *J. Biol. Chem.* **277**(47), 44877-44885 (2002).
4. Kozak, K.R., Crews, B.C., Ray, J.L., *et al.* Metabolism of prostaglandin glycerol esters and prostaglandin ethanolamides *in vitro* and *in vivo*. *J. Biol. Chem.* **276**(40), 36993-36998 (2001).

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