

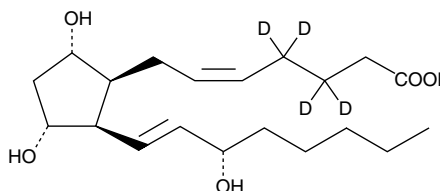
# Product Information



## 8-iso Prostaglandin F<sub>2α</sub>-d<sub>4</sub>

Item No. 316350

**CAS Registry No.:** 211105-40-7  
**Formal Name:** 9α,11α,15S-trihydroxy-(8β)-prosta-5Z,13E-dien-1-oic-3,3,4,4-d<sub>4</sub> acid  
**Synonyms:** iPF<sub>2α</sub>-III-d<sub>4</sub>, 8-Isoprostane-d<sub>4</sub>, 15-F<sub>2τ</sub>-Isoprostane-d<sub>4</sub>, 8-*epi* PGF<sub>2α</sub>-d<sub>4</sub>  
**MF:** C<sub>20</sub>H<sub>30</sub>D<sub>4</sub>O<sub>5</sub>  
**FW:** 358.5  
**Chemical Purity:** ≥98% 8-iso Prostaglandin F<sub>2α</sub>  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**Stability:** ≥2 years at -20°C  
**Supplied as:** A solution in methyl acetate



### Laboratory Procedures

8-iso Prostaglandin F<sub>2α</sub>-d<sub>4</sub> (8-iso PGF<sub>2α</sub>-d<sub>4</sub>) 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 8-iso PGF<sub>2α</sub> by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that 8-iso PGF<sub>2α</sub>-d<sub>4</sub> be stored as supplied at -20°C. It will be stable for at least two years.

8-iso PGF<sub>2α</sub>-d<sub>4</sub> 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, or dimethyl formamide purged with an inert gas can be used. The solubility of 8-iso PGF<sub>2α</sub>-d<sub>4</sub> in these solvents is approximately 100 mg/ml.

8-iso PGF<sub>2α</sub>-d<sub>4</sub> is used as an internal standard for the quantification 8-iso PGF<sub>2α</sub> by stable isotope dilution MS. The accuracy of the sample weight in this vial is between 5% over and 2% under. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard 8-iso PGF<sub>2α</sub> by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

8-iso Prostaglandin F<sub>2α</sub> (8-iso PGF<sub>2α</sub>) is an isoprostane produced by the non-enzymatic peroxidation of arachidonic acid in membrane phospholipids.<sup>1-3</sup> It circulates in human plasma in two distinct forms - esterified in LDL phospholipids and as the free acid. The ratio of these two forms is approximately 2:1, with a total plasma 8-iso PGF<sub>2α</sub> level of about 150 pg/ml in normal volunteers. In normal human urine, 8-iso PGF<sub>2α</sub> levels are about 180-200 pg/mg of creatinine.<sup>1,2</sup> 8-iso PGF<sub>2α</sub> is a weak TP receptor agonist in vascular smooth muscle.<sup>4</sup> Conversely, 8-iso PGF<sub>2α</sub> inhibits platelet aggregation induced by U-46619 (10<sup>-6</sup> M) and I-BOP (3 x 10<sup>-7</sup> M) with IC<sub>50</sub> values of 1.6 x 10<sup>-6</sup> M and 1.8 x 10<sup>-6</sup> M, respectively.<sup>3</sup>

### References

- Morrow, J.D., Hill, K.E., Burk, R.F., *et al.* A series of prostaglandin F<sub>2</sub>-like compounds are produced *in vivo* in humans by a non-cyclooxygenase, free radical-catalyzed mechanism. *Proc. Natl. Acad. Sci. USA* **87**, 9383-9387 (1990).
- Morrow, J.D., Harris, T.M., Roberts, L.J., II. Noncyclooxygenase oxidative formation of a series of novel prostaglandins: Analytical ramifications for measurement of eicosanoids. *Anal. Biochem.* **184**, 1-10 (1990).
- Morrow, J.D., Minton, T.A., Roberts, L.J., II. The F<sub>2</sub>-isoprostane, 8-*epi*-prostaglandin F<sub>2α</sub>, a potent agonist of the vascular thromboxane/endoperoxide receptor, is a platelet thromboxane/endoperoxide receptor antagonist. *Prostaglandins* **44**, 155-163 (1992).
- Kiriyama, M., Ushikubi, F., Kobayashi, T., *et al.* Ligand binding specificities of the eight types and subtypes of the mouse prostanoid receptors expressed in Chinese hamster ovary cells. *Br. J. Pharmacol.* **122**, 217-224 (1997).

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