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# Product Information



## 13,14-dihydro-15-keto Prostaglandin E<sub>1</sub>-d<sub>4</sub>

Item No. 9000288

**Formal Name:** 9,15-dioxo-11 $\alpha$ -hydroxy-prostan-1-oic-3,3,4,4-d<sub>4</sub> acid

**Synonyms:** 13,14-dh-15-k PGE<sub>1</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

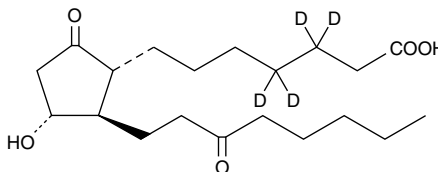
**Chemical Purity:**  $\geq$ 98%

### Deuterium

**Incorporation:**  $\geq$ 99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>);  $\leq$ 1% d<sub>0</sub>

**Stability:**  $\geq$ 1 year at -20°C

**Supplied as:** A solution in methyl acetate



### Laboratory Procedures

13,14-dihydro-15-keto Prostaglandin E<sub>1</sub>-d<sub>4</sub> (13,14-dh-15-k PGE<sub>1</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 13,14-dh-15-k PGE<sub>1</sub> by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that 13,14-dh-15-k PGE<sub>1</sub>-d<sub>4</sub> be stored as supplied at -20°C. It will be stable for at least one year.

13,14-dh-15-k PGE<sub>1</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, and dimethyl formamide purged with an inert gas can be used. The solubility of 13,14-dh-15-k PGE<sub>1</sub>-d<sub>4</sub> in these solvents is approximately 50 mg/ml.

13,14-dh-15-k PGE<sub>1</sub>-d<sub>4</sub> is used as an internal standard for the quantification 13,14-dh-15-k PGE<sub>1</sub>-d<sub>4</sub> 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).

13,14-dh-15-k PGE<sub>1</sub> is a metabolite of PGE<sub>1</sub> with much reduced biological activity.<sup>1-3</sup> Steady state plasma concentrations are about 10 pg/ml.<sup>1</sup> 13,14-dh-15-k PGE<sub>1</sub> is a weak inhibitor of ADP-induced platelet aggregation in human PRP and washed platelets with IC<sub>50</sub> values of 54 and 200  $\mu$ M, respectively, compared to PGE<sub>1</sub> which has an IC<sub>50</sub> value of 40 nM.<sup>4</sup>

### References

1. Leonhardt, A., Krauss, M., Gieler, U., *et al.* *In vivo* formation of prostaglandin E<sub>1</sub> and prostaglandin E<sub>2</sub> in atopic dermatitis. *Br. J. Dermatol.* **136**, 337-340 (1997).
2. Hamberg, M. and Samuelsson, B. On the metabolism of prostaglandins E<sub>1</sub> and E<sub>2</sub> in man. *J. Biol. Chem.* **246**, 6713-6721 (1971).
3. Peskar, B.A., Cawello, W., Rogatti, W., *et al.* On the metabolism of prostaglandin E<sub>1</sub> administered intravenously to human volunteers. *J. Physiol. Pharmacol.* **42**, 327-331 (1991).
4. Kobzar, G., Mardla, V., Järving, I., *et al.* Antiaggregating potency of E-type prostaglandins in human and rabbit platelets. *Proc. Estonian Acad. Sci. Chem.* **40**, 179-180 (1991).

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