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# Product Information

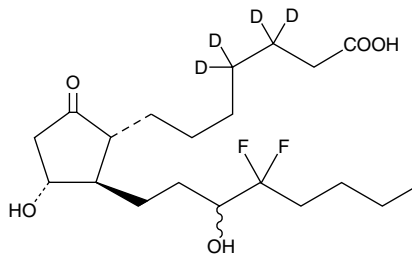


## 13,14-dihydro-15(R,S)-hydroxy-16,16-difluoro

### Prostaglandin E<sub>1</sub>-d<sub>4</sub>

Item No. 9000406

<b>Formal Name:</b>	9-oxo-11 $\alpha$ ,15R,S-dihydroxy-16-difluoro-prostan-1-oic-3,3,4,4-d <sub>4</sub> acid
<b>Synonym:</b>	15-hydroxy Lubiprostone
<b>MF:</b>	C <sub>20</sub> H <sub>30</sub> D <sub>4</sub> F <sub>2</sub> O <sub>5</sub>
<b>FW:</b>	396.5
<b>Chemical Purity:</b>	≥98%
<b>Deuterium Incorporation:</b>	≥99% deuterated forms (d <sub>1</sub> -d <sub>4</sub> ); ≤1% d <sub>0</sub>
<b>Stability:</b>	≥1 year at -20°C
<b>Supplied as:</b>	A solution in methyl acetate



#### Laboratory Procedures

13,14-dihydro-15(R,S)-hydroxy-16,16-difluoro prostaglandin E<sub>1</sub>-d<sub>4</sub> (13,14-dihydro-15(R,S)-hydroxy-16,16-difluoro 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-dihydro-15(R,S)-hydroxy-16,16-difluoro PGE<sub>1</sub> by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that 13,14-dihydro-15(R,S)-hydroxy-16,16-difluoro PGE<sub>1</sub>-d<sub>4</sub> be stored as supplied at -20°C. It should be stable for at least one year.

13,14-dihydro-15(R,S)-hydroxy-16,16-difluoro 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-dihydro-15(R,S)-hydroxy-16,16-difluoro PGE<sub>1</sub>-d<sub>4</sub> in these solvents is approximately 5 mg/ml.

13,14-dihydro-15(R,S)-hydroxy-16,16-difluoro PGE<sub>1</sub>-d<sub>4</sub> is used as an internal standard for the quantification of 13,14-dihydro-15(R,S)-hydroxy-16,16-difluoro PGE<sub>1</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).

PGE<sub>1</sub> is produced by the metabolism of dihomo- $\gamma$ -linolenic acid (DGLA) by the cyclooxygenase pathway. PGE<sub>1</sub> inhibits platelet aggregation (IC<sub>50</sub> = 40 nM) and increases vasodilation.<sup>1,2</sup> 13,14-dihydro-16,16-difluoro PGE<sub>1</sub> is a biologically active metabolite of PGE<sub>1</sub>, inhibiting platelet aggregation with comparable potency to the parent compound.<sup>2,3</sup> The addition of two electron-withdrawing fluorine atoms, which should stabilize the molecule against hydrolytic cleavage, may be expected to delay degradation *in vivo*.<sup>4</sup>

#### References

1. 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).
2. Westwick, J. The effect of pulmonary metabolites of prostaglandins E<sub>1</sub>, E<sub>2</sub> and F<sub>2 $\alpha$</sub>  on ADP-induced aggregation of human and rabbit platelets. *Br. J. Pharmacol.* **58**, 297P-298P (1976).
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. Hatano, Y., Kohli, J.D., Goldberg, L.I., *et al.* Vascular relaxing activity and stability studies of 10,10-difluoro-13,14-dehydroprostaglyclin. *Proc. Natl. Acad. Sci. USA* **77(11)**, 6846-6850 (1980).

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