

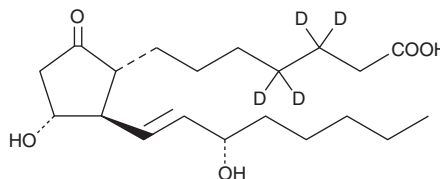
# PRODUCT INFORMATION



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

Item No. 313010

**CAS Registry No.:** 211105-33-8  
**Formal Name:** 9-oxo-11 $\alpha$ ,15S-dihydroxy-prost-13E-en-1-oic-3,3,4,4-d<sub>4</sub> acid  
**Synonyms:** Alprostadil-d<sub>4</sub>, 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:** ≥99% Prostaglandin E<sub>1</sub>  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**Stability:** ≥1 year at -20°C  
**Supplied as:** A solution in methyl acetate



### Laboratory Procedures

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

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 PGE<sub>1</sub>-d<sub>4</sub> in these solvents is approximately 50 mg/ml.

PGE<sub>1</sub>-d<sub>4</sub> is used as an internal standard for the quantification of 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 weight indicated on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard PGE<sub>1</sub> by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

### Description

PGE<sub>1</sub> is the theoretical cyclooxygenase metabolite of dihomo- $\gamma$ -linolenic acid (DGLA), but it is virtually undetectable in the plasma of normal humans or other animals.<sup>1</sup> Its pharmacology includes vasodilation, hypotension, and anti-platelet activities. The IC<sub>50</sub> value of PGE<sub>1</sub> for the inhibition of ADP-induced human platelet aggregation is 40 nM.<sup>2,3</sup> The vasorelaxant and anti-hypertensive effects of PGE<sub>1</sub> are used to treat male erectile dysfunction and to provide emergency vasodilation of the patent ductus arteriosus in infants whose cardiac anomalies require pulmonary shunting for survival.<sup>4,5</sup> In human males, the intracavernosal effective dose range for PGE<sub>1</sub> is 2 to 80  $\mu$ g, and the transurethral range is 125 to 1,000  $\mu$ g.<sup>4</sup>

### References

1. Cawello, W., Schweer, H., Dietrich, B., *et al.* *J. Urol.* **158**, 1403-1407 (1997).
2. Kobzar, G., Mardla, V., Järving, I., *et al.* *Proc. Estonian Acad. Sci. Chem.* **40**, 179-180 (1991).
3. Okada, F., Nukada, T., Yamauchi, Y., *et al.* *Prostaglandins* **7**, 99-106 (1974).
4. Padma-Nathan, H., Hellstrom, W.J.G., Kaiser, F.E., *et al.* *N. Engl. J. Med.* **336**, 1-7 (1997).
5. Olley, P.M. and Coceani, F. *Annu. Rev. Med.* **32**, 375-3785 (1981).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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