

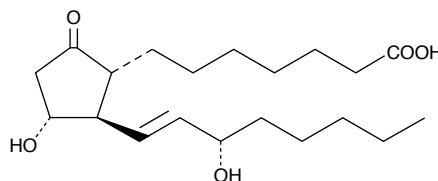
# Product Information



## Prostaglandin E<sub>1</sub> Analytical Reference Standard

Catalog No. 13010.1

**CAS Registry No.:** 745-65-3  
**Formal Name:** 9-oxo-11 $\alpha$ ,15S-dihydroxy-prost-13E-en-1-oic acid  
**Synonym:** Alprostadil  
**MF:** C<sub>20</sub>H<sub>34</sub>O<sub>5</sub>  
**FW:** 354.5  
**Purity:**  $\geq$ 99%  
**Stability:**  $\geq$ 2 years at -20°C  
**Supplied as:** Light yellow to white needles



### Laboratory Procedures

For long term storage, we suggest that Prostaglandin E<sub>1</sub> (PGE<sub>1</sub>) be stored as supplied at -20°C. It will be stable for at least two years.

PGE<sub>1</sub> is supplied as a crystalline solid. A stock solution may be made by dissolving the PGE<sub>1</sub> in an organic solvent. PGE<sub>1</sub> is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of PGE<sub>1</sub> in these solvents is approximately 50 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of PGE<sub>1</sub> can be prepared by directly dissolving the crystalline compound in aqueous buffers. The solubility of PGE<sub>1</sub> in PBS (pH 7.2) is approximately 1.67 mg/ml. Avoid adding PGE<sub>1</sub> to basic solutions (pH >7.4), since base treatment will degrade PGE<sub>1</sub> to Prostaglandin A and Prostaglandin B compounds. Also, ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

PGE<sub>1</sub> is a clinically useful vasodilator and an inhibitor of platelet aggregation. This compound conforms to quality specifications set by USP.<sup>1</sup> 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>3</sup> PGE<sub>1</sub> pharmacology includes vasodilation, hypotension, and anti-platelet activities.<sup>4</sup> The IC<sub>50</sub> of PGE<sub>1</sub> for the inhibition of ADP-induced human platelet aggregation is 40 nM.<sup>2,5</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>3,5</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>3</sup>

### References

1. *Alprostadil*. In: USP Official Monographs (Ed. 23, pp. 48-49, USP, Washington, D.C. (1995).
2. 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).
3. Cawello, W., Schweer, H., Dietrich, B., *et al.* Pharmacokinetics of prostaglandin E<sub>1</sub> and its main metabolites after intracavernous injection and short-term infusion of prostaglandin #1 in patients with erectile dysfunction. *J. Urol.* **158**, 1403-1407 (1997).
4. Padma-Nathan, H., Hellstrom, W.J.G., Kaiser, F.E., *et al.* Treatment of men with erectile dysfunction with transurethral alprostadil. *N. Engl. J. Med.* **336**, 1-7 (1997).
5. Okada, F., Nukada, T., Yamauchi, Y., *et al.* The hypotensive effect of prostaglandin E<sub>1</sub> on hypertensive cases of various types. *Prostaglandins* **7**, 99-106 (1974).
6. Olley, P.M. and Coccani, F. Prostaglandins and the ductus arteriosus. *Annu. Rev. Med.* **32**, 375-3785 (1981).

### Related Products

Prostaglandin E<sub>1</sub> - Cat. No. 13010 • Prostaglandin E<sub>1</sub>(GMP, USP) - Cat. No. 13010.5 • Prostaglandin E<sub>1</sub>-d<sub>4</sub> - Cat. No. 313010 • Dihomo- $\gamma$ -Linolenic Acid - Cat. No. 90230

**WARNING: THIS PRODUCT IS NOT INTENDED OR APPROVED FOR HUMAN OR VETERINARY USE. USE OF THIS PRODUCT FOR HUMAN OR ANIMAL TESTING IS EXTREMELY HAZARDOUS AND MAY RESULT IN DISEASE, SEVERE INJURY, OR DEATH.**

#### MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent under separate cover to the MSD supervisor at your institution.

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