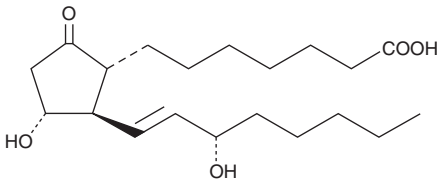
PRODUCT INFORMATION

Prostaglandin E_1

Item No. 13010

CAS Registry No.: 745-65-3
Formal Name: 9-oxo-11α,15S-dihydroxy-prost-13E-en-1-oic acid
Synonyms: Alprostadil, PGE_1
MF: $C_{20}H_{34}O_5$
FW: 354.5
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

PGE_1 is supplied as a crystalline solid. A stock solution may be made by dissolving the PGE_1 in an organic solvent. PGE_1 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of PGE_1 in ethanol and DMSO is approximately 50 mg/ml and approximately 100 mg/ml in DMF.

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_1 can be prepared by directly dissolving the crystalline compound in aqueous buffers. The solubility of PGE_1 in PBS (pH 7.2) is approximately 0.5 mg/ml. Avoid adding PGE_1 to basic solutions (pH >7.4), since base treatment will degrade PGE_1 to PGA and PGB compounds. We do not recommend storing the aqueous solution for more than one day.

Description

PGE_1 is the theoretical cyclooxygenase metabolite of dihomo-γ-linolenic acid (DGLA), but it is virtually undetectable in the plasma of normal humans or other animals.[1] Its pharmacology includes vasodilation, hypotension, and anti-platelet activities. The IC_{50} of PGE_1 for the inhibition of ADP-induced human platelet aggregation is 40 nM.[2,3] The vasorelaxant and anti-hypertensive effects of PGE_1 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.[4,5] In human males, the intracavernosal effective dose range for PGE_1 is 2 to 80 µg, and the transurethral range is 125 to 1,000 µg.[4]

References

1. Cawello, W., Schweer, H., Dietrich, B., *et al.* Pharmacokinetics of prostaglandin E_1 and its main metabolites after intracavernous injection and short-term infusion of prostaglandin E_1 in patients with erectile dysfunction. *J. Urol.* **158**, 1403-1407 (1997).
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. Okada, F., Nukada, T., Yamauchi, Y., *et al.* The hypotensive effect of prostaglandin E_1 on hypertensive cases of various types. *Prostaglandins* **7**, 99-106 (1974).
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. Olley, P.M. and Coceani, F. Prostaglandins and the ductus arteriosus. *Annu. Rev. Med.* **32**, 375-3785 (1981).

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