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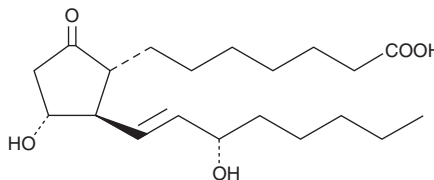
PRODUCT INFORMATION



Prostaglandin E₁

Item No. 13010

CAS Registry No.: 745-65-3
Formal Name: 9-oxo-11 α ,15S-dihydroxy-prost-13E-en-1-oic acid
Synonyms: Alprostadil, PGE₁
MF: C₂₀H₃₄O₅
FW: 354.5
Purity: \geq 98%
Stability: \geq 2 years at -20°C
Supplied as: A crystalline solid



Laboratory Procedures

Prostaglandin E₁ (PGE₁) is a clinically useful vasodilator and an inhibitor of platelet aggregation. For long term storage, we suggest that PGE₁ be stored as supplied at -20°C. It should be stable for at least two years.

PGE₁ is supplied as a crystalline solid. A stock solution may be made by dissolving the PGE₁ in an organic solvent. PGE₁ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of PGE₁ 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 PGE₁ can be prepared by directly dissolving the crystalline compound in aqueous buffers. The solubility of PGE₁ in PBS (pH 7.2) is approximately 0.5 mg/ml. Avoid adding PGE₁ to basic solutions (pH >7.4), since base treatment will degrade PGE₁ to PGA and PGB compounds. We do not recommend storing the aqueous solution for more than one day.

Description

PGE₁ 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 IC₅₀ of PGE₁ for the inhibition of ADP-induced human platelet aggregation is 40 nM.^{2,3} The vasorelaxant and anti-hypertensive effects of PGE₁ 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 PGE₁ is 2 to 80 μ g, and the transurethral range is 125 to 1,000 μ g.⁴

References

1. Cawello, W., Schweer, H., Dietrich, B., *et al.* Pharmacokinetics of prostaglandin E₁ and its main metabolites after intracavernous injection and short-term infusion of prostaglandin E₁ 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 E₁ 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).

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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