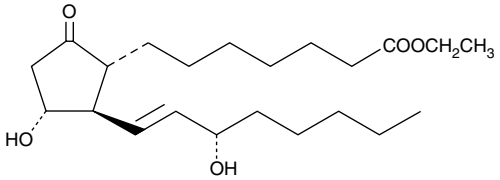
Product Information

Prostaglandin E_1 ethyl ester

Item No. 9001730

CAS Registry No.: 35900-16-4
Formal Name: 11α,15S-dihydroxy-9-oxo-prost-13E-en-1-oic acid, ethyl ester
Synonyms: Alprostadil ethyl ester, PGE_1 ethyl ester
MF: $C_{22}H_{38}O_5$
FW: 382.5
Purity: ≥95%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 288 nm



Laboratory Procedures

For long term storage, we suggest that prostaglandin E_1 (PGE_1) ethyl ester be stored as supplied at -20°C. It should be stable for at least two years.

PGE_1 ethyl ester is supplied as a crystalline solid. A stock solution may be made by dissolving the PGE_1 ethyl ester in the solvent of choice. PGE_1 ethyl ester is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of PGE_1 ethyl ester in these solvents is approximately 100, 50, and 75 mg/ml, respectively.

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 ethyl ester can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of PGE_1 ethyl ester in PBS, pH 7.2, is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

PGE_1 is the theoretical cyclooxygenase metabolite of dihomo-γ-linolenic acid.[1] Its pharmacology includes vasodilation, hypotension, and anti-platelet activities. The IC_{50} value of PGE_1 for the inhibition of ADP-induced human platelet aggregation is 40 nM.[2,3] PGE_1 is used to treat male erectile dysfunction and to maintain ductus arteriosus patency in infants.[4,5] PGE_1 ethyl ester is an esterified form of the free acid which may be more amenable for certain applications.

References

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2. Kobzar, G., Mardla, V., Järving, I., *et al.* Antiaggregating potency of E-type prostaglandins in human and rabbit platelets. *Proc. Est. 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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