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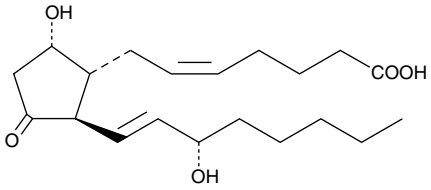
Product Information

Prostaglandin D_2

Item No. 12010

CAS Registry No.: 41598-07-6
Formal Name: 9α,15S-dihydroxy-11-oxo-prosta-5Z,13E-dien-1-oic acid
Synonym: PGD_2
MF: $C_{20}H_{32}O_5$
FW: 352.5
Purity: ≥98%
Stability: ≥1 year at -20°C
Supplied as: A crystalline solid



Laboratory Procedures

Prostaglandin D_2 (PGD_2) is a biologically active primary prostaglandin and a common product of arachidonic metabolism in mammals. For long term storage, we suggest that PGD_2 be stored as supplied at -20°C. It should be stable for at least one year.

PGD_2 is supplied as a crystalline solid. A stock solution may be made by dissolving the PGD_2 in an organic solvent. PGD_2 is soluble in organic solvents such as ethanol, DMSO, or dimethyl formamide. The solubility of PGD_2 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 PGD_2 can be prepared by directly dissolving the crystalline compound in aqueous buffers. The solubility of PGD_2 in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

PGD_2 is the major eicosanoid product of mast cells and is released in large quantities during allergic and asthmatic anaphylaxis.[1] Mastocytosis patients produce excessive amounts of PGD_2, which causes vasodilation, flushing, hypotension, and syncopal episodes.[1] PGD_2 is also produced in the brain *via* an alternative pathway involving a soluble, secreted PGD-synthase also known as β-trace.[2,3] In the brain, PGD_2 produces normal physiological sleep and lowering of body temperature.[2,3] Further pharmacological actions include inhibition of platelet aggregation and relaxation of vascular smooth muscle.[4] PGD_2 inhibits human ovarian tumor cell proliferation with an IC_{50} of 6.8 µM.[5]

References

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2. Hayaishi, O. Sleep-wake regulation by prostaglandins D_2 and E_2. *J. Biol. Chem.* **263**, 14593-14596 (1988).
3. Onoe, H., Ueno, R., Fujita, I., *et al.* Prostaglandin D_2, a cerebral sleep-inducing substance in monkeys. *Proc. Natl. Acad. Sci. USA* **85**, 4082-4086 (1988).
4. Giles, H. and Leff, P. The biology and pharmacology of PGD_2. *Prostaglandins* **35**, 277-300 (1988).
5. Kikuchi, Y., Kita, T., Hirata, J., *et al.* Preclinical studies of antitumor prostaglandins by using human ovarian cancer cells. *Cancer. Metast. Rev.* **13**, 309-315 (1994).

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