

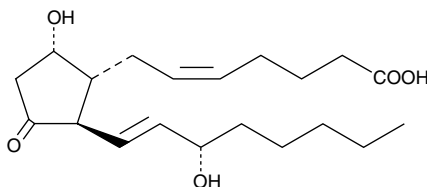
# Product Information



## Prostaglandin D<sub>2</sub>

Item No. 12010

**CAS Registry No.:** 41598-07-6  
**Formal Name:** 9 $\alpha$ ,15S-dihydroxy-11-oxo-prosta-5Z,13E-dien-1-oic acid  
**Synonym:** PGD<sub>2</sub>  
**MF:** C<sub>20</sub>H<sub>32</sub>O<sub>5</sub>  
**FW:** 352.5  
**Purity:**  $\geq$ 98%  
**Stability:**  $\geq$ 1 year at -20°C  
**Supplied as:** A crystalline solid



### Laboratory Procedures

Prostaglandin D<sub>2</sub> (PGD<sub>2</sub>) is a biologically active primary prostaglandin and a common product of arachidonic metabolism in mammals. For long term storage, we suggest that PGD<sub>2</sub> be stored as supplied at -20°C. It should be stable for at least one year.

PGD<sub>2</sub> is supplied as a crystalline solid. A stock solution may be made by dissolving the PGD<sub>2</sub> in an organic solvent. PGD<sub>2</sub> is soluble in organic solvents such as ethanol, DMSO, or dimethyl formamide. The solubility of PGD<sub>2</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 PGD<sub>2</sub> can be prepared by directly dissolving the crystalline compound in aqueous buffers. The solubility of PGD<sub>2</sub> in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

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

### References

1. Roberts, L.J., II and Sweetman, B.J. Metabolic fate of endogenously synthesized prostaglandin D<sub>2</sub> in a human female with mastocytosis. *Prostaglandins* **30**, 383-400 (1985).
2. Hayaishi, O. Sleep-wake regulation by prostaglandins D<sub>2</sub> and E<sub>2</sub>. *J. Biol. Chem.* **263**, 14593-14596 (1988).
3. Onoe, H., Ueno, R., Fujita, I., *et al.* Prostaglandin D<sub>2</sub>, 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<sub>2</sub>. *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).

### Related Products

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### Cayman Chemical

#### Mailing address

1180 E. Ellsworth Road  
Ann Arbor, MI  
48108 USA

#### Phone

(800) 364-9897  
(734) 971-3335

#### Fax

(734) 971-3640

#### E-Mail

[custserv@caymanchem.com](mailto:custserv@caymanchem.com)

#### Web

[www.caymanchem.com](http://www.caymanchem.com)