Prostaglandin D$_2$

**CAS Registry No.:** 41598-07-6  
**Formal Name:** 9a,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%  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥2 years

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

**Laboratory Procedures**

Prostaglandin D$_2$ (PGD$_2$) is supplied as a crystalline solid. A stock solution may be made by dissolving the PGD$_2$ in the solvent of choice, which should be purged with an inert gas. PGD$_2$ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of PGD$_2$ in these solvents is approximately 75, 50, and 100 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 PGD$_2$ can be prepared by directly dissolving the crystalline solid 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.

**Description**

PGD$_2$ is the major eicosanoid product of mast cells and is released in large quantities during allergic and asthmatic anaphylaxis. Mastocytosis patients produce excessive amounts of PGD$_2$, which causes vasodilation, flushing, hypotension, and syncopal episodes. PGD$_2$ is also produced in the brain via an alternative pathway involving a soluble, secreted PGD-synthase also known as β-trace. In the brain, PGD$_2$ produces normal physiological sleep and lowering of body temperature. Further pharmacological actions include inhibition of platelet aggregation and relaxation of vascular smooth muscle. PGD$_2$ inhibits human ovarian tumor cell proliferation with an IC$_{50}$ of 6.8 µM.

**References**