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ProductInformation

Prostaglandin E_2

Product Number **P 5640**
Storage Temperature -0 °C

Product Description
Melting Point: 66 - 68 C[1]

Prostaglandin E_2 (PGE_2) stimulates the production of interleukin-6 (IL-6) by neonatal mouse parietal bones. After 6 hours in culture, 10^{-8} M PGE_2 produced significantly more IL-6 than controls.[2] The pyrogenic activity of PGE_2 was not inhibited by dexamethasone, unlike prostaglandin $F_{2\alpha}$.[3] PGE_2 is a signal molecule produced by activated platelets, and may comprise part of a mechanism by which activated platelets utilize adjacent erythrocytes to help in clot formation.[4]

Precautions and Disclaimer
For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions
PGE_2 is soluble in water at 1.05 mg/ml at 25 °C. The formation of aqueous solutions is pH-dependent, i.e., at a pH above 6 the solubility is about 5 mg/ml (which is the Critical Micelle Concentration, CMC).[1]

Stock solutions of 10 mg/ml can be prepared in ethanol and further diluted with 0.1 M phosphate buffer to obtain the desired concentration (the remaining amount of ethanol is usually insignificant). Alternatively, the ethanol stock solution may be diluted with a sodium carbonate solution (the amount of Na_2CO_3 used should not exceed the amount needed to neutralize the prostaglandin acid). The preparation of aqueous stock solutions of PGE_2 is difficult to achieve. However, in cases where even traces of ethanol are undesirable, PGE_2 can be dissolved by prolonged agitation in 0.1 M phosphate buffer. Rapid dissolution may be effected by ultrasonication, but not for an extended time which may cause heating of the solution.

All solutions should be stored at 2-8 °C and protected from light. When aqueous solutions are frozen, PGE_2 may precipitate. Usually gentle shaking or brief sonication of the solution will dissolve the precipitate.

Storage/Stability
The aqueous stability of PGE_2 at 25 °C:[5]

pH	Hours for 10% loss
3-4	133
6	53
8	42
9	4.2
10	0.42 (25 min.)

In absolute ethanol, PGE_2 loses about 10% potency in about 24 to 36 months at 4 °C at 1 to 10 mg/ml. At lower concentrations solutions are less stable.

References
1. The Merck Index, 12th, Entry# 8064.
2. Holt, I., et al., Bone and Mineral, **25**, 47 (1994).
3. Coelho, M.M., et al., Dexamethasone Inhibits the Pyrogenic Activity of Prostaglandin F2 alpha, but not Prostaglandin E2. Eur. J. Pharmacol., **238(2-3)**, 391-394 (1993).
4. Li, Q., et al., Prostaglandin E2 Stimulates a Ca^{2+}-dependent K^+ Channel in Human Erythrocytes and Alters Cell Volume and Filterability. J. Biol. Chem., **271(31)**, 18651-18656 (1996).
5. Stehle, R.G., Physical Chemistry, Stability, and Handling of Prostaglandins E2, F2alpha, D2 and I2: A Critical Summary. Methods in Enzymology, **86**, 436-458 (1982).

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