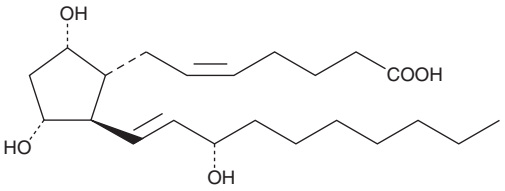
PRODUCT INFORMATION

20-ethyl Prostaglandin $F_{2\alpha}$

Item No. 16940

CAS Registry No.:	36950-85-3
Formal Name:	9α,11α,15S-trihydroxy-20a,20b-dihomoprosta-5Z,13E-dien-1-oic acid
Synonyms:	ICI 74205, 20-ethyl $PGF_{2\alpha}$
MF:	$C_{22}H_{38}O_5$
FW:	382.5
Purity:	≥98%
Supplied as:	A solution in methyl acetate
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

20-ethyl Prostaglandin $F_{2\alpha}$ (20-ethyl $PGF_{2\alpha}$) is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide (DMF) purged with an inert gas can be used. The solubility of 20-ethyl $PGF_{2\alpha}$ in ethanol and DMF is approximately 33 mg/ml and approximately 14 mg/ml in DMSO.

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. If an organic solvent-free solution of 20-ethyl $PGF_{2\alpha}$ is needed, it can be prepared by evaporating the methyl acetate and directly dissolving the neat oil in aqueous buffers. The solubility of 20-ethyl $PGF_{2\alpha}$ in PBS (pH 7.2) is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

20-ethyl $PGF_{2\alpha}$ is an analog of $PGF_{2\alpha}$ in which the ω-chain has been extended by the addition of two more methylene carbon atoms. It is therefore a modified version of the clinically approved glaucoma medication unoprostone.[1] Unoprostone also contains lower side chain modifications (13,14-dihydro-15-keto) which severely limit its affinity for FP receptors, contributing to its lack of potency as a medication. 20-ethyl $PGF_{2\alpha}$ retains the natural 15(S) allylic hydroxyl in the lower side chain, which may improve its potency as an intraocular hypotensive agent compared to unoprostone. The 2 carbon extension in 20-ethyl-$PGF_{2\alpha}$ increases the K_i (120 nM) for the FP receptor from bovine corpus luteum only about 2.5-fold compared to $PGF_{2\alpha}$ (50 nM).[2] *In vivo* effects may be prolonged using 20-ethyl $PGF_{2\alpha}$, as the activity of 15-hydroxy PGDH using 20-ethyl $PGF_{2\alpha}$ as a substrate is only 35% of the activity observed with $PGF_{2\alpha}$.[2,3]

References

1. Haria, M. and Spencer, C.M. Unoprostone (isopropyl unoprostone). *Drugs Aging* **9(3)**, 213-218 (1996).
2. Powell, W.S., Hammarström, S., Samuelsson, B., *et al*. Interactions between prostaglandin analogues and a receptor in bovine *Corpora lutea*. Correlation of dissociation constants with luteolytic potencies in hamsters. *Eur. J. Biochem*. **59(1)**, 271-276 (1975).
3. Sun, F.F., Armour, S.B., Bockstanz, V.R., *et al*. Studies on 15-hydroxyprostaglandin dehydrogenase from monkey lung. *Advances in prostaglandin and thromboxane research*. Samuelsson, B. and Paoletti, R., editors, *Raven Press* (1976).

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