

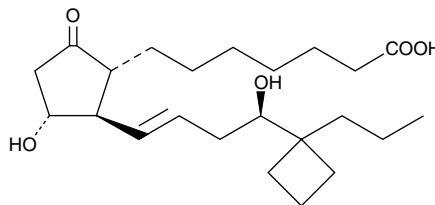
Product Information



(R)-Butaprost (free acid)

Item No. 10006045

Formal Name: 9-oxo-11 α ,16R-dihydroxy-17-cyclobutyl-prost-13E-en-1-oic acid
Synonym: 15-deoxy-16R-hydroxy-17-cyclobutyl PGE₁
MF: C₂₃H₃₈O₅
FW: 394.6
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A solution in methyl acetate



Laboratory Procedures

For long term storage, we suggest that (R)-butaprost (free acid) be stored as supplied at -20°C. It will be stable for at least two years.

(R)-Butaprost (free acid) 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 (R)-butaprost (free acid) is 50 mg/ml in ethanol and 25 mg/ml in both DMSO and DMF.

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 (R)-butaprost (free acid) is needed, it can be prepared by evaporating the methyl acetate and directly dissolving the neat oil in aqueous buffers. The solubility of (R)-butaprost (free acid) in PBS (pH 7.2) is at least 0.1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Butaprost is a structural analog of prostaglandin E₂ (PGE₂) with good selectivity for the EP₂ receptor subtype. Butaprost has frequently been used to pharmacologically define the EP receptor expression profile of various human and animal tissues and cells.¹ Serious confusion as to the structure of butaprost was generated by Gardiner in 1986,² when he reported that the epimer of butaprost showing this selective activity was the C-16 (R)-epimer (See reference 2 and NOTE). In order to increase the binding affinity of (R)-butaprost for prostanoid receptors, we removed the methyl ester of (R)-butaprost and re-established the natural C-1 carboxylic acid. Prostaglandin free acids generally bind to their cognate receptors with 10 to 100 times the affinity of the corresponding ester derivative. The pharmacology of (R)-butaprost has not been carefully studied, but it is generally considered to be the less active C-16 epimer.³

[NOTE: In the Gardiner paper in the 1986 *British Journal of Pharmacology*, Butaprost appears on page 46 where it is given the name TR 4979. The structure as drawn is incorrect, in that the author was using and referring to the more active C-16 epimer, which is actually 16(S). The structure on page 46 shows the structure as 16(R). It was not until the late 1990's that careful studies both in the US and Japan correctly identified the actual configuration of C-16 in the compound called Butaprost is 16(S).]²

References

1. Lawrence, R.A. and Jones, R.L. Investigation of the prostaglandin E (EP-) receptor subtype mediating relaxation of the rabbit jugular vein. *Br. J. Pharmacol.* **105**, 817-824 (1992).
2. Gardiner, P.J. Characterization of prostanoid relaxant/inhibitory receptors (XyX) using a highly selective agonist, TR4979. *Br. J. Pharmacol.* **87**, 45-56 (1986).
3. Regan, J.W., Bailey, T.J., Pepper, D.J., *et al.* Cloning of a novel human prostaglandin receptor with characteristics of the pharmacologically defined EP₂ subtype. *Mol. Pharmacol.* **46**, 213-220 (1994).

Related Products

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WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY; NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

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