

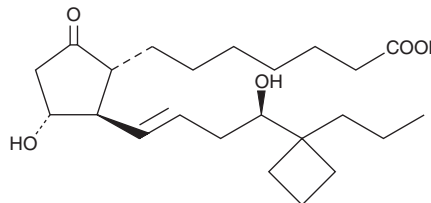
# PRODUCT INFORMATION



## (R)-Butaprost (free acid)

Item No. 10006045

**CAS Registry No.:** 215168-33-5  
**Formal Name:** 9-oxo-11 $\alpha$ ,16R-dihydroxy-17-cyclobutyl-prost-13E-en-1-oic acid  
**Synonyms:** ( $\pm$ )-15-deoxy-16R-hydroxy-17-cyclobutyl PGE<sub>1</sub>, 15-deoxy-16R-hydroxy-17-cyclobutyl PGE<sub>1</sub>  
**MF:** C<sub>23</sub>H<sub>38</sub>O<sub>5</sub>  
**FW:** 394.6  
**Purity:**  $\geq$ 98%  
**Supplied as:** A 5 mg/ml solution in methyl acetate  
**Storage:** -20°C  
**Stability:**  $\geq$ 2 years



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

### Laboratory Procedures

(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) in ethanol is approximately 50 mg/ml and approximately 25 mg/ml in 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 approximately 0.1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Butaprost is a structural analog of prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) with good selectivity for the EP<sub>2</sub> receptor subtype. Butaprost has frequently been used to pharmacologically define the EP receptor expression profile of various human and animal tissues and cells.<sup>1</sup> Serious confusion as to the structure of butaprost was generated by Gardiner in 1986,<sup>2</sup> 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.<sup>3</sup>

[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).]<sup>2</sup>

### References

1. Lawrence, R.A. and Jones, R.L. *Br. J. Pharmacol.* **105**, 817-824 (1992).
2. Gardiner, P.J. *Br. J. Pharmacol.* **87**, 45-56 (1986).
3. Regan, J.W., Bailey, T.J., Pepperl, D.J., et al. *Mol. Pharmacol.* **46**, 213-220 (1994).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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