



Product Information

Phorbol 12,13-dibutyrate

Product Number **P 1269**

Storage Temperature -0 °C

Product Description

Molecular Formula: C₂₈H₄₀O₈

Molecular Weight: 504.6

CAS Number: 37558-16-0

Synonyms: 4β,9α,12β,13α,20-pentahydroxytiglic-1,6-dien-3-one 12,13-dibutyrate; PDBu

4β-Phorbol 12,13-dibutyrate is one of the family of phorbol esters that are used as tumor promoters in cancer research. PDBu is more hydrophilic than phorbol 12-myristate 13-acetate (PMA), which facilitates washing PDBu out of cells in tissue culture.

PDBu is a strong promoter of nitric oxide (NO) synthesis and a potent activator of protein kinase C.¹⁻³ PDBu (100 nM) has been demonstrated to activate endothelial nitric oxide synthase expression in primary human umbilical vein endothelial cells, which in turn correlates with protein kinase C α and ε expression.⁴ PDBu treatment of cultured A7r5 cells to activate protein kinase C has been shown to lead to decreased cytosolic free Ca²⁺ levels.⁵

An ELISA study of primary cultures of human bone marrow stromal cells has indicated that PDBu can regulate the secretion of osteoprotegerin protein.⁶ The stimulation of the 9E3/cCAF chemokine by PDBu in primary cultures of chicken embryo fibroblasts has been studied.⁷

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in chloroform (10 mg/ml), yielding a clear, colorless to faint yellow solution. It is also soluble in DMSO (25 mg/ml) and ethanol (20 mg/ml).

Stock solutions of this product cannot be prepared in aqueous media. It is necessary to dissolve PDBu in a water-miscible solvent before dilution to working concentrations in aqueous media.

Storage/Stability

Stock solutions of this product (≥ 1 mg/ml) are stable for 6 to 12 months when stored at -20 °C in single use aliquots and protected from light. Repeated freeze/thaw cycles should be avoided.

References

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2. Yanagita, T., et al., Protein kinase C and the opposite regulation of sodium channel α- and β-subunit mRNA levels in adrenal chromaffin cells. *J. Neurochem.*, **73(4)**, 1749-1757 (1999).
3. Hori, T., et al., Presynaptic mechanism for phorbol ester-induced synaptic potentiation. *J. Neurosci.*, **19(17)**, 7262-7267 (1999).
4. Li, H., et al., Activation of protein kinase C α and/or ε enhances transcription of the human endothelial nitric oxide synthase gene. *Mol. Pharmacol.*, **53(4)**, 630-637 (1998).
5. Broad, L. M., et al., Receptors linked to polyphosphoinositide hydrolysis stimulate Ca²⁺ extrusion by a phospholipase C-independent mechanism. *Biochem. J.*, **342(Pt 1)**, 199-206 (1999).
6. Brandstrom, H., et al., Regulation of osteoprotegerin secretion from primary cultures of human bone marrow stromal cells. *Biochem. Biophys. Res. Commun.*, **280(3)**, 831-835 (2001).
7. Li, Q., et al., Activation of the 9E3/cCAF chemokine by phorbol esters occurs via multiple signal transduction pathways that converge to MEK1/ERK2 and activate the Elk1 transcription factor. *J. Biol. Chem.*, **274(22)**, 15454-15465 (1999).

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