Phorbol 12-myristate 13-acetate

**Item No. 10008014**

**CAS Registry No.:** 16561-29-8

**Formal Name:** tetradecanoic acid, (1aR,1bS,4aR,7aS,7bS,8R,9aS)-9a-(acetyloxy)-1a,1b,4,4a,5,7a,7b,8,9,9a-decahydro-4a,7b-dihydroxy-3-(hydroxymethyl)-1,1,6,8-tetramethyl-5-oxo-1H-cyclopropa[3,4]benz[1,2-e]azulen-9-yl ester

**Synonyms:** PMA, 12-O-Tetradecanoylphorbol-13-acetate, TPA

**MF:** C₃₆H₅₆O₈

**FW:** 616.8

**Purity:** ≥95%

**Supplied as:** A solid

**Storage:** -20°C

**Stability:** ≥2 years

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

**Laboratory Procedures**

Phorbol 12-myristate 13-acetate (PMA) is supplied as a solid. A stock solution may be made by dissolving the PMA in the solvent of choice. PMA is soluble in organic solvents such as ethanol, methanol, DMSO, dimethyl formamide, acetone, and ether, which should be purged with an inert gas.

PMA is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

**Description**

PMA is a phorbol ester that is commonly used to activate certain types of protein kinase C (PKC), including group A (α, βI, βII, γ) and group B (δ, ε, η, θ) isoforms. Phorbol esters, including PMA, are structurally analogous to diacylglycerol and activate PKC isoforms by associating with their C1 domains. Through PKC, PMA also activates certain MAP kinase pathways. Prolonged treatment of cells with PMA at high concentrations results in the downregulation of total PKC activity and is tumorigenic, whereas lower concentrations may be protective. In addition, PMA promotes hematopoietic differentiation. The aqueous solubility of PMA is about 10-fold better than that of phorbol-12,13-dibutyrate, indicating that PMA is preferable in cell-based studies.

**References**