**TPA (12-O-Tetradecanoylphorbol-13-Acetate)**

**1 mg**

**Description:** TPA (12-O-tetradecanoylphorbol-13-acetate)/PMA (phorbol-12-myristate-13-acetate) is soluble in DMSO and ethanol. A 200 nM TPA treatment is standard to induce signaling.

**Background:** TPA (12-O-tetradecanoylphorbol-13-acetate)/PMA (phorbol-12-myristate-13-acetate) is the most commonly used phorbol ester. It binds and activates protein kinase C, causing a wide range of effects in cells and tissues (1,2). TPA has been demonstrated to be a potent tumor promoter in mouse skin (3). Conversely, it has been shown to be an effective cancer therapeutic agent in myelocytic leukemia patients, and has been indicated as a potential colorectal cancer therapeutic (4-5). TPA has also been shown to increase white blood cell and neutrophil counts in solid tumor cancer patients (6).

**Concentration:** Supplied as 1 mg lyophilized powder.

**Molecular Formula:** C_{36}H_{56}O_{8}

**Molecular Weight:** 616.84 g/mol

**Directions for Use:** TPA is supplied as 1 mg powder. Store at -20°C. Before use, dissolve powder in 1 ml DMSO to yield a 1.6 mM stock solution. For working concentration of 200 μM, add 125 μl stock solution to 875 μl DMSO. Treat cells with 200 nM TPA for 20-30 minutes.

**Background References:**

**Storage:** Store lyophilized or in solution at -20°C, desiccated. Protect from light. In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.

Western blot analysis of extracts from serum-starved 293 cells, untreated (lane 1), stimulated with TPA treatment (lanes 2 & 3), and treated with CIP and λ phosphatase (lane 3), using Phospho-PKC (pan) (βII Ser660) Antibody #9371 or PKCα Antibody #2056.

Western blot analysis of extracts from serum-starved 293 cells, untreated (lane 1), stimulated with TPA treatment (lanes 2 & 3), and treated with CIP and λ phosphatase (lane 3), using Phospho-PKD/PKCµ (Ser916) Antibody #2051 or PKD/PKCµ Antibody #2052.