Background: Originally isolated from the soil fungi Nocardio-
pisis sp., K252a is a staurosporine analog that inhibits various protein kinases through competition with the ATP binding site (1,2). K252a is a reversible cell-permeable, potent inhibitor of phosphorylase kinase (IC₅₀ = 1.7 nM), protein kinase A (PKA) (IC₅₀ = 140 nM), and protein kinase C (PKC) (IC₅₀ = 470 nM) (3,4). K252a is also known to inhibit protein kinase G and CaM kinase II (5,6). K252a inhibits nerve growth factor induced Trk activation (IC₅₀ = 3 nM), as well as downstream signaling (5,7,8). K252a is reported to induce apoptosis and cell cycle arrest through cdks2 and cdks2 inhibition (9).

Molecular Formula: C₂₇H₂₁N₃O₅

Molecular Weight: 467 g/mol

Solubility: Soluble in DMSO at 100 mg/ml; poorly soluble in ethanol.

Purity: >99%

Directions for Use: K252a is supplied as a lyophilized powder. For a 1 mM stock, reconstitute the 100 µg in 213.9 µl DMSO. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used as a pretreatment at 0.1-1 µM for 0.5-1 hr prior to treating with a stimulator.

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.

Background References:

Western blot analysis of extracts from PC-12 cells, serum-starved overnight and untreated or treated with Human β-Nerve Growth Factor (hβ-NGF) #5221 (100 ng/ml, 5 min) either with or without K252a pretreatment (1 hr) at the indicated concentrations, using Phospho-TrkA (Tyr490) Antibody #9141 (upper) or β-Actin (D6A8) Rabbit mAb #8457 (lower).

Western blot analysis of extracts from HeLa cells, serum-starved overnight and untreated or treated with TPA #4174 (200 nM, 15 min) either with or without K252a pretreatment (1 hr) at the indicated concentrations, using Phospho-MARCKS (Ser167/170) Antibody (D13E4) XP® Rabbit mAb #8722 (upper) or MARCKS (D88D11) XP® Rabbit mAb #5607 (lower).