Anisomycin

**Background:** Anisomycin, an antibiotic produced by *Streptomyces griseolus* and *S. roseochromogenes*, was originally described to inhibit protein-protein synthesis at the translational level (1). More recently, it has been well characterized to strongly activate the stress kinases SAPK/JNK and p38 MAPK, as well as p70/S6 kinase in mammalian cells, which results in the rapid induction of immediate-early (IE) genes, such as c-fos, fosB, c-jun, JunB, and JunD (1). Investigators have demonstrated that anisomycin acts as a potent signaling agonist, synergizing with growth factors and phorbol esters to superinduce these IE genes (1,2). Research studies have demonstrated that anisomycin induces apoptosis in many cancer cell lines (3-5).

**Molecular Formula:** C_{14}H_{19}NO_{4}

**Molecular Weight:** 265.3 g/mol

**Solubility:** Soluble in DMSO or MeOH.

**Purity:** >98%

**Directions for Use:** Anisomycin is supplied as a lyophilized powder. For a 25 mg/ml stock, reconstitute the 10 mg in 400 µl DMSO. Working concentrations and length of treatments vary depending on the desired effect, but it is typically used at 5-50 µg/ml for 5-60 minutes.

**Storage:** Store lyophilized or in solution at 4°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 293T cells, treated with Anisomycin (25 μg/ml) for the indicated times, with or without pretreatment with JNK inhibitor SP600125 (50 μM, 40 min; +), using Phospho-JunB (Thr102/Thr104) (D3C6) Rabbit mAb #8053 (upper) or JunB (C37F9) Rabbit mAb #3753 (lower).**

**Western blot analysis of extracts from Jurkat cells, serum-starved overnight, pretreated with the indicated concentrations of SB202190 for 1 hr, and subsequently treated with Anisomycin (25 μg/ml, 30 min; +), using Phospho-p38 MAPK (Thr180/Tyr182) (D3F9) XP® Rabbit mAb #4511 (upper) or p38 MAPK Antibody #9212 (lower).**

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