Anisomycin
from *Streptomyces griseolus*

Product Number A 9789
Storage Temperature 2-8 °C

CAS RN: 22862-76-6
Synonym: Flagecidin

Molecular Formula: C_{14}H_{19}O_{4}N
Molecular Weight: 265.30
Melting Point: 140-141 °C

$E_{\text{M}}$ (224 nm) = 10.8
$E_{\text{M}}$ (277 nm) = 1.8
$E_{\text{M}}$ (283 nm) = 1.6

$[\alpha]_D^{23} = -30^\circ$ (methanol)

Product Description
Anisomycin is a pyrrolidine antibiotic isolated from culture filtrates of *Streptomyces griseolus*. It is primarily an antiprotozoal agent with little antibacterial or antifungal activity. It is a potent, structurally specific and reversible inhibitor of protein and DNA synthesis in eukaryotic organisms including HeLa cells. In rabbit reticulocytes and in Hela cells, greater than 99% inhibition of protein synthesis was achieved by using 10^{-5} M anisomycin. RNA synthesis was unaffected by anisomycin at 10^{-6} M. At minimum concentrations ranging from 1.5 μg/mL to 3.1 μg/mL, anisomycin inhibits bacteria-free cultures of *Trichomonas vaginalis*, *Trichomonas foetus* and *Endamoeba histolytica*. Anisomycin has been extensively used in studying the apoptosis process. It affects both pro- and anti-apoptotic mechanisms, depending on the concentration used. It was found to be a stimulator of two anti-apoptotic proteins Akt and Bcl-2 and an activator of JNKs and P38, which participate in stress and apoptotic responses. Injections of Anisomycin affect the acquisition of classically conditioned responses in intermediate cerebellum during learning and the long-term memory in a spatial memory task.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
Anisomycin is soluble at 25 mg/mL in ethanol and 50 mg/mL in DMSO. Moderately soluble in water at 2 mg/mL. For higher solubility in aqueous solution (100 mg/mL), the pH should be lowered to 5.0. It is also soluble in lower alcohols, esters, ketones, chloroform; slightly soluble in benzene, toluene and hexane. Sigma routinely tests the solubility at 20 mg/mL in methanol, yielding a clear, faint yellow solution.

Storage/Stability
Store the product dessicated at 2-8 °C. Under these conditions the product is stable for 4 years. Aqueous solutions of anisomycin are most stable at neutral pH. Slightly acidic solutions lose activity at relatively slow rates, while alkaline solutions lose activity more rapidly. DMSO solutions are stable for at least one month at 2-8 °C.

References