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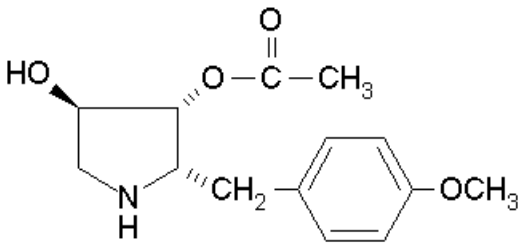
# ProductInformation

**Anisomycin**
**from *Streptomyces griseolus***

Product Number **A 9789**
Storage Temperature 2-8 °C

CAS RN: 22862-76-6

Synonym: Flagecidin



Molecular Formula: $C_{14}H_{19}O_4N$
Molecular Weight: 265.30

Melting Point: 140-141 °C [1]

$E_{mM}$ (224 nm) = 10.8 [1]
$E_{mM}$ (277nm) = 1.8 [1]
$E_{mM}$ (283nm) = 1.6 [1]

$[\alpha]_D^{23}$ = –30° (methanol) [1]

**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.[2] 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.[2] 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*.[3] 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 [4] and an activator of JNKs [5,6] and P38, which participate in stress and apoptotic responses.[6] Injections of Anisomycin affect the acquisition of classically conditioned responses in intermediate cerebellum during learning[7] and the long-term memory in a spatial memory task.[8]

**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.[1] 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.[3] DMSO solutions are stable for at least one month at 2-8 °C.

**References**
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2. Grollman, A.P., J. Biol. Chem., **242**, 3226-3233 (1967).
3. Tanner, F.W. et al., Antibiotics Annual, 809-812 (1954-1955).
4. Torocsik, B. and Szeberenyi, J., Biochem. Biophys. Res. Commun., **278**, 550-6 (2000)
5. Curtin. J.F. and Cotter T.G., Br. J. Cancer, **87**, 1188-94 (2002).

6. Torocsik, B. and Szeberenyi. J., Eur. J. Neurosci., **12**, 527-32 (2000).
7. Bracha, V., et al., Brain Res., **788**, 169-78 (1998).
8. Meiri, N, and Rosenblum, K., Brain Res., **789**, 48-55 (1998).

NDH/PHC 12/04