

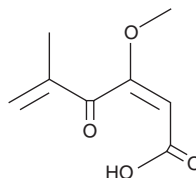
PRODUCT INFORMATION



Penicillic Acid

Item No. 11440

CAS Registry No.: 90-65-3
Formal Name: 3-methoxy-5-methyl-4-oxo-2,5-hexadienoic acid
Synonym: NSC 402844
MF: C₈H₁₀O₄
FW: 170.2
Purity: ≥98%
UV/Vis.: λ_{max}: 224 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Penicillic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the penicillic acid in the solvent of choice. Penicillic acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of penicillic acid in these solvents is approximately 30 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of penicillic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of penicillic acid in PBS, pH 7.2, is approximately 2.5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Gram negative bacteria utilize N-acylated homoserine lactones to coordinate expression of virulence in response to the density of the surrounding bacterial population in a process termed quorum sensing. By interfering with this communication and thereby disrupting virulence expression, quorum sensing inhibitors are emerging as an alternative to the conventional ways of fighting bacterial infections. Penicillic acid is a mycotoxin produced from *Penicillium* species identified in molds on corn and other grains. At 80 μM, penicillic acid inhibits bacterial quorum sensing communication in *P. aeruginosa* by selectively repressing various virulence factor and other quorum sensing-regulated genes.¹ It has been shown to inhibit Fas-mediated apoptosis at 100-200 μM by targeting caspase-8 activity in Burkitt's lymphoma Raji cells.²

References

1. Rasmussen, T.B., Skindersoe, M.E., Bjarnsholt, T., *et al.* Identity and effects of quorum-sensing inhibitors produced by *Penicillium* species. *Microbiology* **151**(Pt 5), 1325-1340 (2005).
2. Bando, M., Hasegawa, M., Tsuboi, Y., *et al.* The mycotoxin penicillic acid inhibits Fas ligand-induced apoptosis by blocking self-processing of caspase-8 in death-inducing signaling complex. *J. Biol. Chem.* **278**(8), 5786-5793 (2003).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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