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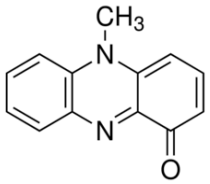
Product Information

Pyocyanin
from *Pseudomonas aeruginosa*

Catalog Number **P0046**
Storage Temperature –20 °C

CAS RN 85-66-5
Synonyms: 5-Methyl-1(5H)-phenazinone, Sanasin, Sanazin, Pyocyanine

Product Description



Molecular formula: $C_{13}H_{10}N_2O$
Molecular weight: 210.23

Pyocyanin is a blue-green, phenazine pigment. It is a redox compound (electron acceptor), which stimulates redox cycling in bacteria, liver cells, and human epithelial cell lines.[1,2]

Pyocyanin enhances oxidative metabolism, which in turn increases the formation of intracellular reactive oxygen species (ROS) via reduction of NADPH.[1,3,4] It also increases the release of interleukin-8 (IL-8) by airway epithelial cells both *in vitro* and *in vivo.* This involves signal transduction pathways that include oxidants, protein tyrosine kinases, and MAP-kinases. IL-8 secretion by these cells is in synergy with inflammatory cytokines.[1,4,5] Pyocyanin has been shown to accelerate neutrophil apoptosis *in vitro*, resulting in resolution of acute inflammation, which is beneficial for bacterial survival.[6]

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

Pyocyanin is soluble in DMSO, ethanol, acetone, and chloroform. For preparation of an aqueous solution, dissolve Pyocyanin in ethanol using 10% of the final required volume, and then add distilled water to the final volume.

Storage/Stability

Store the product sealed at –20 °C. Under these conditions the product is stable for at least 4 years.

References

1. Kanthakumar, K. et al., Mechanisms of action of *Pseudomonas aeruginosa* pyocyanin on human ciliary beat *in vitro*. Infect. Immunol., **61**, 2848-2853 (1993).
2. Da Silva, G.A., and de Almeida, E.A., Production of Yellow-Green Fluorescent Pigment by *Pseudomonas fluorescens*. Braz. Arch. Biol. Technol., **49**, 411-419 (2006).
3. Price-Whelan, A. et al., Pyocyanin alters redox homeostasis and carbon flux through central metabolic pathways in *Pseumonas aeruginosa* PA14. J. Bacteriol., **189,** 6372-6381 (2007).
4. O'Malley, Y.Q. et al., *Pseumonas aeruginosa* pyocyanin directly oxidizes glutathione and decreases its levels in airway epithelial cells. Am. J. Physiol. Lung Cell. Mol. Physiol., **287**, L94-L103 (2004).
5. Denning, G.M. et al., *Pseudomonas* pyocyanin increases interleukin-8 expression by human airway epithelial cells. Infect. Immun., **66**, 5777-5784 (1998).
6. Allen, L. et al., Pyocyanin production by *Pseudomonas aeruginosa* induces neutrophil apoptosis and impairs neutrophil-mediated host defenses *in vivo*. J. Immunol., **174**, 3643-3649 (2005).

EM,DWF,KAA,MAM 03/12-1