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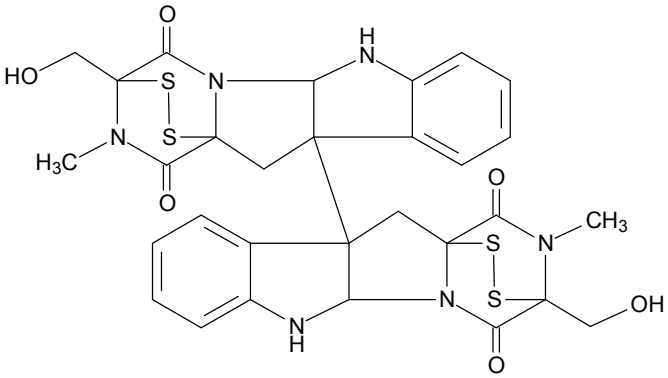
Product Information

Chaetocin
from *Chaetomium minutum*

Catalog Number **C9492**
Storage Temperature 2–8 °C

CAS RN 28097-03-2
Synonym: Chetocin

Product Description
Molecular formula: $C_{30}H_{28}O_6N_6S_4$
Molecular mass: 696.84 Da



Chaetocin is a fungal metabolite with antimicrobial and cytostatic activity.[1,2] It belongs to the 3,6-epidithio-dioxopiperazine class of which gliotoxin, sporidesmin, aranotin, oryzachloride, verticillin A, and the melinacidins are members.[1,3] Chaetocin is a molecular dimer of two *cis* fused five-membered rings.[1] Interestingly, the chirality of the 3,6-epidithio-dioxopiperazine moiety in chaetocin is opposite to the chirality of gliotoxin, sporidesmin, aranotin, and oryzachloride. Unlike these compounds, chaetocin does not have an antiviral activity.[1] This fungal toxin showed strong cytotoxicity against HeLa cells (IC_{50} = 0.05 μg/ml).[2]

Chaetocin was found to be a specific inhibitor of the lysine-specific histone methyltransferase SU(VAR)3-9 (IC_{50} = 0.6 μM) of *Drosophila melanogaster* and of its human ortholog (IC_{50} = 0.8 μM). It acts as a competitive inhibitor for S-adenosylmethionine.[4] The specificity of chaetocin for SU(VAR)3-9 makes this compound an excellent tool for the study of heterochromatin-mediated gene repression.[4]

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
The product is soluble in DMSO. At a concentration of 1 mg/ml the solution is stable for 1 week at 2–8 °C.

Storage/Stability
Store the product at 2–8 °C. Under these conditions the product is stable for 2 years.

References
1. Weber, H.P., *et al*., The molecular structure and absolute configuration of chaetocin. *Acta Cryst*., **B28**, 2945-2951 (1972).
2. Udagawa, S., *et al*., The production of chaeto-globosins, sterigmatocystin, O-methyl-sterigmatocystin, and chaetocin by *Chaetomium* spp. and related fungi. *Can. J. microbiol.*, **25**, 170-177 (1979).
3. Gardiner, D.M., *et al*., The epipolythiodioxo-piperazine (ETP) class of fungal toxins: distribution, mode of action, functions and biosynthesis. *Microbiol*., **151**, 1021-1032 (2005).
4. Greiner, D., *et al*., Identification of a specific inhibitor of the histone methyltransferase SU(VAR)3-9. *Nat. Chem. Biol.*, **1**, 143-145 (2005).

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