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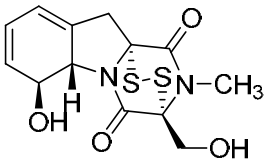
PRODUCT DATA SHEET

Gliotoxin

Code: **BIA-G1260**

Pack sizes: **1 mg, 5 mg**



Synonyms : **Aspergillin, SN 12879, Antibiotic SN 12870**

Specifications

CAS #	:	**67-99-2**
Molecular Formula	:	**$C_{13}H_{14}N_2O_4S_2$**
Molecular Weight	:	**326.0**
Source	:	***Gliocladium fimbriatum***
Appearance	:	**White powder**
Purity	:	**> 99% by HPLC**
Storage	:	**-20°C**
Solubility	:	**Soluble in ethanol, methanol, DMF or DMSO. Poor water solubility.**

Application Notes

Gliotoxin is a potent epithiodioxopiperazine mycotoxin produced by species in the genera Gliocladium, *Aspergillus* and *Penicillium*. At the cellular level gliotoxin has been shown to inhibit a broad range of unrelated mechanisms, such as inhibition of chymotrypsin-like activity of the 20S proteasome, Ca2+ release from mitochondria, activation of transcription factor NF-κB in response to a variety of stimuli in T and B cells, anti-inflammatory activity and inhibition of farnesyltransferase and geranylgeranyltransferase. The mode of action appears to be via covalent binding to proteins through mixed disulphide formation. Gliotoxin has been shown to inhibit a number of thiol-requiring enzymes and also displays antioxidant and immunomodulatory activity.

References

1. Gliotoxin, the antibiotic principle of *Gliocladium fimbriatum*. I. Production, physical and biological properties.Johnson D. et al. JACS 1943, 65, 2005.
2. The epipolythiodioxopiperazine (ETP) class of fungal toxins: distribution, mode of action, functions and biosynthesis. Gardiner D. M. et al. Microbiology 2005, 151, 1021.
3. Gliotoxin is a dual inhibitor of farnesyltransferase and geranylgeranyltransferase I with antitumor activity against breast cancer in vivo. Vigushin D. M. et al. Med. Oncol. 2004, 21, 21.
4. The secondary fungal metabolite gliotoxin targets proteolytic activities of the proteasome. Kroll M. et al. Chem. Biol. 1999, 6, 689.
5. The immunosuppressive fungal metabolite gliotoxin specifically inhibits transcription factor NF-kappaB. Pahl, H. L. et al. J.Exp. Med. 1996, 183, 1829.
6. Gliotoxin stimulates Ca^{2+} release from intact rat liver mitochondria. Schweizer M. & Richter C. Biochemistry 1994, 33, 13401.

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