

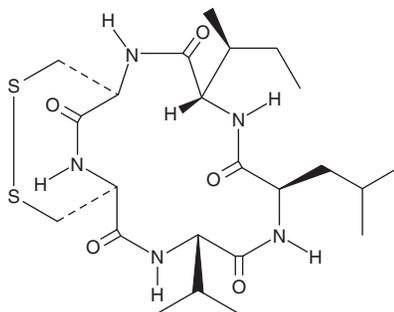
PRODUCT INFORMATION



Malformin A

Item No. 27510

CAS Registry No.: 3022-92-2
Formal Name: cyclo(D-cysteiny-D-cysteiny-L-valyl-D-leucyl-L-isoleucyl), cyclic (1→2)-disulfide
Synonym: Malformin A₁
MF: C₂₃H₃₉N₅O₅S₂
FW: 529.7
Purity: ≥95%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years
Item Origin: Synthetic



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

Laboratory Procedures

Malformin A is supplied as a solid. A stock solution may be made by dissolving the malformin A in the solvent of choice, which should be purged with an inert gas. Malformin A is soluble in the organic solvent DMSO, which should be purged with an inert gas, at a concentration of approximately 1 mg/ml.

Description

Malformin A is a cyclopentapeptide fungal metabolite that has been found in *A. niger* and has diverse biological activities.¹⁻⁶ It is a plant growth regulator that induces malformations in plant structure.² Malformin A inhibits replication of tobacco mosaic virus (TMV) in local lesion and leaf-disc assays (IC₅₀s = 19.7 and 45.4 µg/ml, respectively).³ It is cytotoxic to NCI-H460, MIA PaCa-2, MCF-7, SF-268, and WI-38 cancer cells (IC₅₀s = 70, 50, 100, 70, and 100 nM, respectively), inhibits proliferation of PC3 and LNCaP cells (IC₅₀s = 130 and 90 nM, respectively), and induces apoptosis and necrosis in PC3 and LNCaP cells.^{4,5} Malformin A also increases the accumulation of reactive oxygen species, decreases the mitochondrial membrane potential, and induces autophagy in PC3 and LNCaP cells.⁵ It is toxic to mice when administered intraperitoneally (LD₅₀ = 3.1 mg/kg) but not orally up to doses of 50 mg/kg.⁶

References

1. Kim, K.-W., Sugawara, F., Yoshida, S., *et al.* Structure of malformin A, a phytotoxic metabolite produced by *Aspergillus niger*. *Biosci. Biotechnol. Biochem.* **57(2)**, 240-243 (1993).
2. Curtis, R.W. and Buckhout, T.J. Effect of malformin on the growth, development, and behavior of *Phaseolus vulgaris* L. *Bot. Gaz.* **138(2)**, 153-158 (1977).
3. Tan, Q.-W., Gao, F.-L., Wang, F.-R., *et al.* Anti-TMV activity of malformin A₁, a cyclic penta-peptide produced by an endophytic fungus *Aspergillus tubingensis* FJBJ11. *Int. J. Mol. Sci.* **16(3)**, 5750-5761 (2015).
4. Zhan, J., Gunaherath, G.M.K.B., Wijeratne, E.M.K., *et al.* Asperpyrone D and other metabolites of the plant-associated fungal strain *Aspergillus tubingensis*. *Phytochemistry* **68(3)**, 368-372 (2007).
5. Liu, Y., Wang, M., Wang, D., *et al.* Malformin A₁ promotes cell death through induction of apoptosis, necrosis and autophagy in prostate cancer cells. *Cancer Chemother. Pharmacol.* **77(1)**, 63-75 (2016).
6. Yoshizawa, T., Tsuchiya, Y., Morooka, N., *et al.* Malformin A₁ as a mammalian toxicant from *Aspergillus niger*. *Agr. Biol. Chem.* **39(6)**, 1325-1326 (1975).

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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