

ProductInformation

Syringomycin E from *Pseudomonas syringae* B-301D

Catalog Number **S6946**

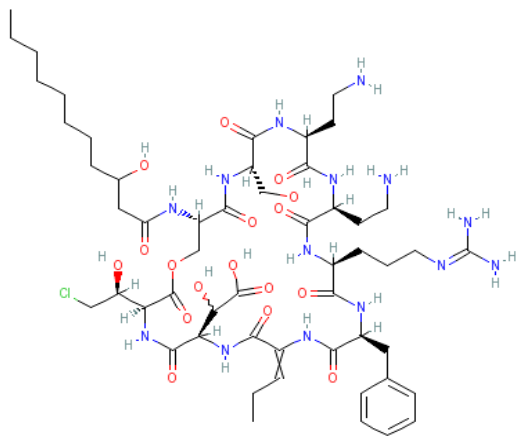
Storage Temperature –20 °C

CAS RN 124888-22-8

Product Description

Molecular formula: C₅₃H₈₅ClN₁₄O₁₇

Molecular Weight: 1225.78



Syringomycin E (SR-E) is a phytotoxin of the cyclic lipodepsinonapeptides class, composed of a 3-hydroxy fatty acid tail attached to a polar peptide head that contains nine amino acid residues.¹ It is a potent biosurfactant toxic to many plants and fungi and is implicated as a virulence factor in several major plant diseases like holcus spot disease of maize and bacterial canker of stone fruits.¹⁻³ It has been shown to inhibit the growth of several yeast strains including *Rhodotorula pilimanae* and *Saccharomyces cerevisiae*¹ and is also effective against human pathogenic fungi.⁴ SR-E targets the plant and fungal plasma membrane altering several of its functions such as membrane potential, protein phosphorylation, H⁺-ATPase activity, and ion fluxes.¹ All of these effects are related to SR-E pore formation in the host membrane. At least six molecules of SR-E compose a channel with a radius of ~1 nm and individual channels can become aggregated

into clusters that exhibit synchronous opening and closing.¹ Remarkably, the host membrane composition influences the sensitivity to SR-E⁵ and membrane lipids directly participate in the channel gating.⁶ SR-E is reported to cause lysis of erythrocytes of different origin.^{1, 7}

Purity: >95% by HPLC

Reagent

Supplied as a 0.5 mg/mL solution in 1 mM HCl

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.

Storage/Stability

Store at –20 °C. Under these conditions, the product is stable for 18 months.

References

1. Bender, C.L., et al., *Pseudomonas syringae* phytotoxins: mode of action, regulation, and biosynthesis by peptide and polyketide synthetases. *Microbiol. Molec. Biol. Rev.*, **63**, 266-292 (1999).
2. Sinden, S.L., et al., Properties of syringomycin, a wide spectrum antibiotic and phytotoxin produced by *Pseudomonas syringae*, and its role in the bacterial canker disease of peach trees. *Physiol. Pl. Pathol.*, **1**, 199-213 (1971).
3. Gross, D.C., and DeVay, J.E., Role of syringomycin in holcus spot of maize and systemic necrosis of cowpea caused by *Pseudomonas syringae*. *Physiol. Pl. Pathol.*, **11**, 1-11 (1977).
4. De Lucca, A.J., et al., Fungal lethality, binding, and cytotoxicity of syringomycin E. *Antimicrob. Agents Chemother.*, **43**, 371-373 (1999).

5. Kaulin, Y.A., et al., Sphingolipids influence the sensitivity of lipid bilayers to fungicide, syringomycin E. *J. Bioenerg. Biomembr.*, **37**, 339-399 (2005).
6. Malev, V.V., et al., Syringomycin E channel: a lipidic pore stabilized by lipopeptide? *Biophys. J.*, **82**, 1985-1994 (2002).
7. Sorensen, K.N., et al., *In vitro* antifungal and fungicidal activities and erythrocyte toxicities of cyclic lipodepsinonapeptides produced by *Pseudomonas syringae* pv. *syringae*. *Antimicrob. Agents Chemother.*, **40**, 2710-2713 (1996).

ES,SP,KAA,PHC 10/06-1

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