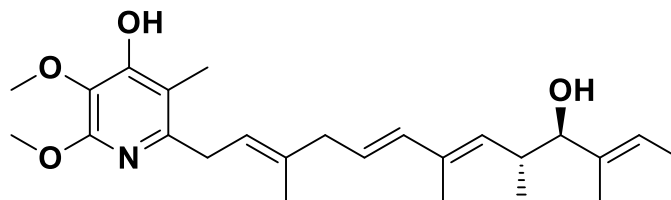


PRODUCT DATA SHEET

Date: Jun. 17, 2022

Piericidin A1

(NADH:ubiquinone oxidoreductase inhibitor)



Synonyms: Piericidin A

Specifications

Code No.	: 14688
CAS#	: 2738-64-9
Molecular Formula	: C ₂₅ H ₃₇ NO ₄
Molecular Weight	: 415.574
Source	: <i>Streptomyces mobaraensis</i>
Supplied as	: EtOH solution (1mg/mL)
Purity	: >90 % (HPLC)
Long Term Storage	: at -20 °C.
Solubility	: Soluble in MeOH, EtOH, Hexane, DMSO and DMF Poorly soluble in H ₂ O

Application Notes

Piericidin A1 was first found as an insecticide and isolated from the fermentation broth of *Streptomyces mobaraensis*.¹⁾ Piericidin A1 is a potent inhibitor of complex I (NADH:ubiquinone oxidoreductase) that binds to its ubiquinone binding site (IC₅₀ value is 3.7 nM).^{2, 3)} It exhibits high toxicity, and the LD₅₀ value is 0.87 mg/kg after intraperitoneal injection in mice.^{1, 3)} It is suggested that piericidin A1 prevents up-regulation of GRP78 and exhibits cytotoxicity in glucose-deprived HT-29 cells (etoposide-resistant).⁴⁾

Note: It is recommended a stock solution should be protected from light and use within a couple of days.

References

- 1) Isolation and physiological activities of piericidin A, a natural insecticide produced by *Streptomyces*. Tamura S, *et al. Agr Biol Chem.* 1963 **27**(8) 576-582.
- 2) Three classes of inhibitors share a common binding domain in mitochondrial complex I (NADH:ubiquinone oxidoreductase). Okun J.G, *et al. J Biol Chem.* 1999 **274**(5) 2625-2630.
- 3) The unique chemistry and biology of piericidins. Zhou X. *et al. J Antibiot.* 2016 **69**(6) 582-593.
- 4) Etoposide-resistant HT-29 human colon carcinoma cells during glucose deprivation are sensitive to piericidin A, a GRP78 down-regulator. Hwang J-H, *et al. J Cell Physiol.* 2008 **215**(1) 243-250.