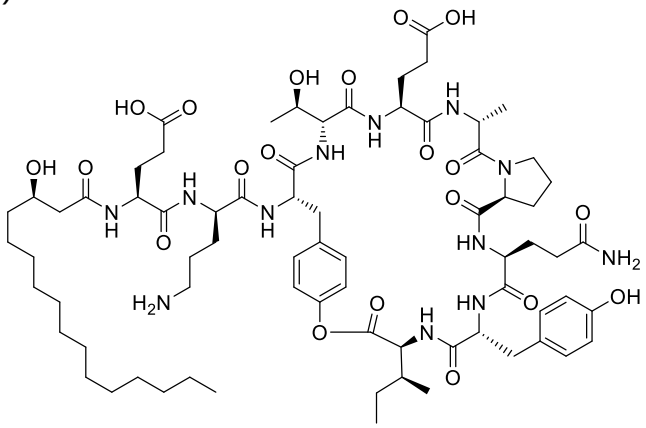
PRODUCT DATA SHEET

Date: Nov. 28, 2022

Plipastatin A1
(phospholipase inhibitor)



Synonyms: Fengycin IX, C16 Plipastatin A

Specifications

Code No.	: 15170
CAS#	: 103651-09-8
Molecular Formula	: $C_{72}H_{110}N_{12}O_{20}$
Molecular Weight	: 1463.736
Source	: *Bacillus* sp.
Supplied as	: Powder
Purity	: >90 % (HPLC)
Long Term Storage	: at -20 °C
Solubility	: Soluble in H_2O, MeOH and DMSO Insoluble in acetone, ethyl acetate

Application Notes

Plipastatin A1, a member of lipopeptide containing a C16 3-hydroxyl fatty acid and 11 amino acids, was isolated as an inhibitor of phospholipase A_2 from the fermentation broth of *Bacillus cereus* BMG302-fF67.[1-3] It showed the inhibitory activity on phospholipase A_2 (IC_{50}: 2.9 μM), C (IC_{50}: 1.3 μM) and D (IC_{50}: 1.4 μM).[1] The LD_{50} value of plipastatin A1 in mice was 250~500 mg/kg.[1] Fengycin IX was revealed to be identical to plipastatin A1.[4]

Plipastatins were reported to demonstrate antibacterial (e.g., *L. monocytogenes*, *S. aureus*, and *Salmonella* Typhimurium) and antifungal (e.g., *Fusarium oxysporum* and *Pythium ultimum*) activities causing cellular membrane distortion and cell membrane pore formation and ultimately death of cells.[5-7] The combination of surfactin and plipastatins led to a decrease in disease in tomato and bean plants.[8] It was suggested that plipastatins may play certain inhibit roles in the development and progression of colon cancer through involving in the cell apoptosis and cell cycle processes by targeting the Bax/Bcl-2 pathway.[9] It was reported that plipastatin A1 was bound to nsp12 (RNA-dependent RNA polymerase of SARS-CoV-2) at the expected position with low binding energies using molecular docking study.[10]

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References

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4) Termination of the structural confusion between plipastatin A1 and fengycin IX. Honma M, *et.al*. *Bioorg Med Chem*.2012 **20** 3793-3798.

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