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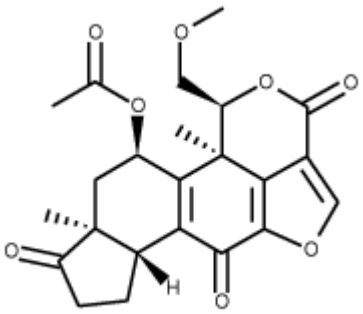
ProductInformation

Wortmannin
from *Penicillium funiculosum*

Catalog Number **W1628**
Storage Temperature 2-8 °C

CAS RN: 19545-26-7

Synonym: KY 12420



Molecular formula: $C_{23}H_{24}O_8$
Molecular weight: 428.43 (anhydrous)

Melting point: 240 °C [1]

Product Description

Wortmannin is a highly cell permeable antifungal antibiotic isolated from *Penicillium funiculosum*. It has no antibacterial properties and is specifically active against fungi.[2]

It is a specific and potent inhibitor of myosin light chain kinase [3] and a potent inhibitor of neutrophil activation by inhibiting F-Met-Leu-Phe(FMLP)-stimulated superoxide anion production without affecting intracellular calcium mobilization.[4] It inhibits FMLP-stimulated phospholipase D activation without direct inhibition of the enzyme.[5] It affects various signal transduction cascades by inhibiting phosphatidylinositol-3-kinases (PI3Ks) and blocking the recovery of calcium and potassium channels. This specific activity is important in studies of various receptor-mediated mechanisms.[6-8]

Phosphatidylinositol-3-kinase participates in the signal transduction pathway responsible for histamine secretion following stimulation of high affinity immunoglobulin E receptor (FceRI). Wortmannin blocks these responses through direct interaction with the catalytic subunits (110 kDa) of PI3-kinase.[9]

Wortmannin inhibited the activity of partially purified PI3-kinase from calf thymus at concentrations as low as 1.0 nM and with IC_{50} values of 3.0 nM. Inhibition was irreversible. It inhibited both FceRI-mediated histamine secretion and leukotriene release up to 80% with IC_{50} values of 2.0 and 3.0 nM, respectively.[9]

Additional activities: immunosuppressive activity [10], strong anti-inflammatory activity [11], suppression of cellular responses such as respiratory burst and exocytosis in neutrophils,[5] and catecholamine release in adrenal chromaffin cells[12] Aggregation and serotonin release in platelets were reported using a final concentration of 1 µM of wortmannin in 0.01% DMSO.[13,14]

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.

Preparation instructions

Sigma routinely tests the solubility at 10 mg/ml in ethyl acetate yielding a clear very faint yellow solution.
Also soluble in:
Methanol (5 mg/mL)
DMSO (50 mg/mL)

Storage/Stability

Store the product desiccated and protected from light at 2-8 °C. Under these conditions the product is stable for 3 years.

It is unstable in aqueous solutions of pH 3-8. [1]
A solution of 50 mg/ml in DMSO is stable for at least 2 months if stored at –20 °C.

References:

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