Small Molecules

Wortmannin

PI3K, PLK inhibitor

Catalog # 73562 1 mg
73564 10 mg

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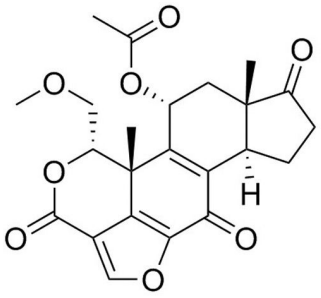
Product Description

Wortmannin is a fungal metabolite that covalently binds to and inhibits phosphatidylinositol-3-kinases (PI3K) of class I, II, and III. Species-specific differences in the class II PI3Ks determine sensitivity with IC_{50} = 5, 50, and 450 nM for Drosophila, mouse, and human, respectively (Fruman et al.; Wymann et al.; Okada et al.). Wortmannin also inhibits polo-like kinases (PLK) PLK1 and PLK3 with IC_{50} = 24 and 49 nM, respectively (Liu et al. 2005; Liu et al. 2007). At high concentrations it can also inhibit other kinases such as mammalian target of rapamycin (mTOR), DNA-dependent protein kinase catalytic subunit (DNA-PKcs), phosphatidylinositol-4-kinase (PI4K), myosin light-chain kinase (MLCK), and mitogen-activated protein kinase (MAPK; Fruman et al.; Meyers & Cantley; Hartley et al.; Brunn et al.; Nakanishi et al.).

Molecular Name:	Wortmannin
Alternative Names:	KY 12420
CAS Number:	19545-26-7
Chemical Formula:	$C_{23}H_{24}O_8$
Molecular Weight:	428.4 g/mol
Purity:	≥ 98%
Chemical Name:	11-(acetyloxy)-1S,6bR,7,8,9aS,10,11R,11bR-octahydro-1-(methoxymethyl)-9a,11b-dimethyl-3H-furo[4,3,2-de]indeno[4,5-h]-2-benzopyran-3,6,9-trione
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.
Solubility:	· DMSO ≤ 30 mM · Absolute ethanol ≤ 0.3 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 233 µL of DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

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· Exhibits cytotoxic activity on a number of human tumor cell lines in vitro, and anti-tumor activity in mouse xenografts of C3H mammary carcinoma and BxPC-3 pancreatic carcinoma cells (Schultz et al.; Yuan et al.).

References

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Yuan H et al. (2007) Covalent reactions of wortmannin under physiological conditions. Chem Biol 14(3): 321–8.

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