Small Molecules

IWP-3

WNT pathway inhibitor; Inhibits Porcupine

Catalog # 72542 1 mg
72544 10 mg

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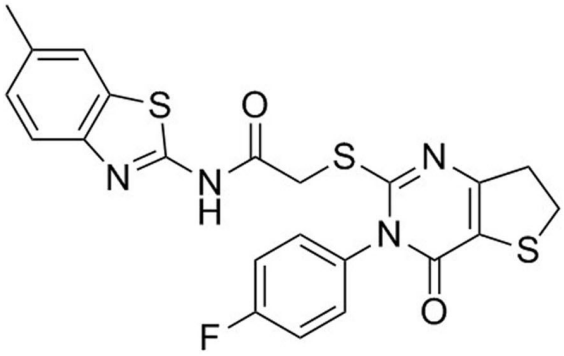
Product Description

Inhibitor of WNT Production-3 (IWP-3) is an inhibitor of WNT signalling. WNT proteins are small secreted proteins that are active in embryonic development, tissue homeostasis, and tumorigenesis (Clevers; Polakis; Reya et al.). WNT proteins bind to receptors on the cell surface, initiating a signaling cascade that leads to β-catenin accumulation and downstream gene transcription. IWP-3 inactivates Porcupine, a membrane-bound O-acyltransferase responsible for palmitoylating WNT proteins, which is essential for their signaling ability and secretion (Chen et al.). IWP-3 impairs WNT pathway activity in vitro with an IC_{50} value of 40 nM (Chen et al.).

Molecular Name:	IWP-3
Alternative Names:	Inhibitor of Wnt Production-3
CAS Number:	687561-60-0
Chemical Formula:	$C_{22}H_{17}FN_4O_2S_3$
Molecular Weight:	484.6 g/mol
Purity:	≥ 98%
Chemical Name:	2-[[3-(4-fluorophenyl)-3,4,6,7-tetrahydro-4-oxothieno[3,2-d]pyrimidin-2-yl]thio]-N-(6-methyl-2-benzothiazolyl)-acetamide
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 ≤ 200 µM · Dimethylformamide (DMF) ≤ 4.1 mM For example, to prepare a 1 mM stock solution in DMF, resuspend 1 mg in 2.06 mL of DMF. 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 DMF 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 DMF concentration above 0.1% due to potential cell toxicity.

Published Applications

DIFFERENTIATION
· Promotes cardiomyocyte differentiation from human embryonic stem cells that have been induced to mesoderm by addition of BMP4 and Activin A (Willems et al.).

References

Chen B et al. (2009) Small molecule-mediated disruption of Wnt-dependent signaling in tissue regeneration and cancer. Nat Chem Biol 5(2): 100–7.
Clevers H. (2006) Wnt/beta-catenin signaling in development and disease. Cell 127(3): 469–80.
Polakis P. (2000) Wnt signaling and cancer. Genes Dev 14(15): 1837–1851.
Reya T & Clevers H. (2005) Wnt signalling in stem cells and cancer. Nature 434(7035): 843–50.
Willems E et al. (2011) Small-molecule inhibitors of the Wnt pathway potently promote cardiomyocytes from human embryonic stem cell-derived mesoderm. Circ Res 109(4): 360–4.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).