

Small Molecules

IWP-4

WNT pathway inhibitor; Inhibits Porcupine

Catalog # 72552
72554

1 mg
10 mg



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TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM

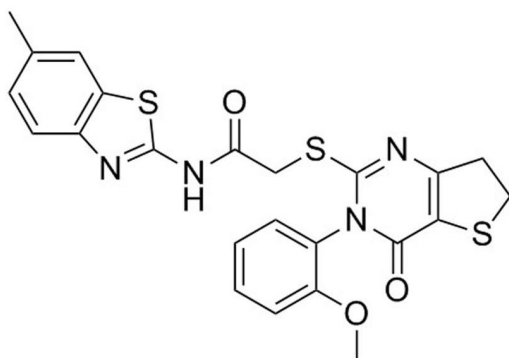
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Product Description

Inhibitor of WNT production-4 (IWP-4) is an inhibitor of WNT signaling. WNT proteins are small secreted proteins that are active in embryonic development, tissue homeostasis, and tumorigenesis (Clevers; Polakis; Reya & Clevers). WNT proteins bind to receptors on the cell surface, initiating a signaling cascade that leads to β -catenin accumulation and downstream gene transcription. IWP-4 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-4 impairs WNT pathway activity in vitro with an IC_{50} value of 25 nM (Chen et al.).

Molecular Name: IWP-4
Alternative Names: Inhibitor of Wnt Production-4
CAS Number: 686772-17-8
Chemical Formula: $C_{23}H_{20}N_4O_3S_3$
Molecular Weight: 496.6 g/mol
Purity: $\geq 95\%$
Chemical Name: N-(6-methyl-2-benzothiazolyl)-2-[[3,4,6,7-tetrahydro-3-(2-methoxyphenyl)-4-oxothieno[3,2-d]pyrimidin-2-yl]thio]-acetamide

Structure:



Properties

Physical Appearance: A crystalline solid
Storage: Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility: · DMSO ≤ 4.0 mM
For example, to prepare a 2 mM stock solution in DMSO, resuspend 1 mg in 1.01 mL of fresh 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

DIFFERENTIATION

- Promotes cardiomyocyte differentiation in human pluripotent stem cells after treatment with CHIR99021 (Catalog #72052; Lian et al. 2012, 2013; Sequiera et al.).
- Promotes cardiomyocyte differentiation in human embryonic stem cells following primitive streak induction with BMP-4 (Catalog #02524) and Activin A (Catalog #78001) (Hudson et al.).

References

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- Hudson J et al. (2012) Primitive cardiac cells from human embryonic stem cells. *Stem Cells Dev* 21(9): 1513–23.
- Lian X et al. (2013) Directed cardiomyocyte differentiation from human pluripotent stem cells by modulating Wnt/ β -catenin signaling under fully defined conditions. *Nat Protoc* 8(1): 162–75.
- Lian X et al. (2012) Robust cardiomyocyte differentiation from human pluripotent stem cells via temporal modulation of canonical Wnt signaling. *Proc Natl Acad Sci USA* 109(27): E1848–57.
- Polakis P. (2000) Wnt signaling and cancer. *Genes Dev* 14(15): 1837–51.
- Reya T & Clevers H. (2005) Wnt signalling in stem cells and cancer. *Nature* 434(7035): 843–50.
- Sequiera GL et al. (2016) A simple protocol for the generation of cardiomyocytes from human pluripotent stem cells. *Methods Mol Biol* 1307: 379–83.

Related Small Molecules

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