Small Molecules

SB216763

WNT pathway activator; Inhibits GSK3α and GSK3β

Catalog #	72872	5 mg
	72874	50 mg

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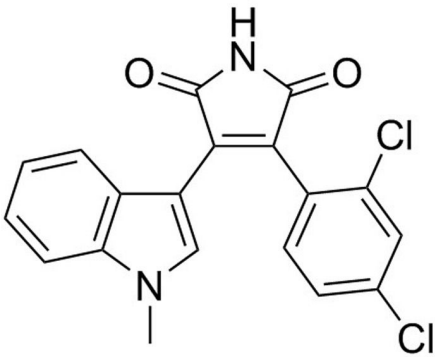
Product Description

SB216763 is a cell-permeable ATP-competitive inhibitor of glycogen synthase kinase 3α (GSK3α, IC_{50} = 34 nM) and GSK3β isozymes (Coghlan et al.). GSK3 is a serine/threonine protein kinase that is inhibited by a variety of extracellular stimuli including insulin, growth factors, cell specification factors, and cell adhesion.

Molecular Name:	SB216763
Alternative Names:	SB-216763
CAS Number:	280744-09-4
Chemical Formula:	$C_{19}H_{12}Cl_2N_2O_2$
Molecular Weight:	371.2 g/mol
Purity:	≥ 98%
Chemical Name:	3-(2,4-Dichlorophenyl)-4-(1-methyl-1H-indol-3-yl)-1H-pyrrole-2,5-dione
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 ≤ 5.3 mM For example, to prepare a 1 mM stock solution in DMSO, resuspend 1 mg in 2.69 mL 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

MAINTENANCE AND SELF-RENEWAL
· Maintains mouse embryonic stem (ES) cells in an undifferentiated, pluripotent state for up to two months when co-cultured with mouse embryonic fibroblasts (MEFs) in the absence of leukemia inhibitory factor (LIF; Kirby et al.).
· Promotes the proliferation of primary mouse retinal stem cells (Inoue et al.).
· Increases neural progenitor proliferation in mouse brains (Mao et al.).
· Increases symmetric division of neural stem cells (NSCs) in in vivo and in vitro models of the adult mouse brain (Piccin and Morshead).
· Inhibits adipocyte differentiation in human mesenchymal stem cells (MSCs; Shen et al.).
· Promotes the generation of hematopoietic stem cells (HSCs) in aorta-gonad-mesonephros (AGM) explant cultures (Ruiz-Herguido et al.).
DIFFERENTIATION
· Enhances the insulin-induced differentiation of quiescent reserve cells from cultured mouse myoblasts (Rochat et al.).
· Stimulates NSC differentiation in cultured rat neurospheres (Maurer et al.).
· Induces neuronal differentiation in cultured human neural progenitor cells (NPCs; Lange et al.).
· Promotes differentiation of dendritic cells from cultured mouse hematopoietic progenitor cells (HPCs; Zhou et al.).
CANCER RESEARCH
· Induces differentiation and reduces the cancer stem cell population of cultured human glioblastoma cells (Korur et al.).

References

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Lange C et al. (2011) Small molecule GSK-3 inhibitors increase neurogenesis of human neural progenitor cells. Neurosci Lett 488(1): 36–40.
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Piccin D & Morshead CM. (2011) Wnt signaling regulates symmetry of division of neural stem cells in the adult brain and in response to injury. Stem Cells 29(3): 528–38.
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Zhou J et al. (2009) Notch and wingless signaling cooperate in regulation of dendritic cell differentiation. Immunity 30(6): 845–59.

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