Small Molecules

SIS3

Activin/NODAL/TGF-β pathway inhibitor; Inhibits SMAD3

Catalog # 73962 500 µg
73964 1 mg

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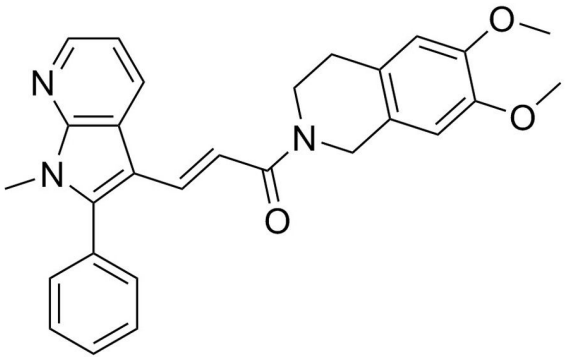
Product Description

SIS3 (specific inhibitor of SMAD3) is a cell-permeable selective inhibitor of transforming growth factor β1 (TGF-β1)-dependent SMAD3 phosphorylation (IC_{50} = 3 µM) and SMAD3-mediated cellular signaling (Jinnin et al.). SIS3 has no effect on SMAD2, p38 mitogen-activated protein kinase (MAPK), extracellular signal-regulated kinase (ERK), or phosphoinositide 3-kinases.

Molecular Name:	SIS3
Alternative Names:	Smad3 Inhibitor
CAS Number:	1009104-85-1
Chemical Formula:	$C_{28}H_{27}N_3O_3$
Molecular Weight:	453.5 g/mol
Purity:	≥ 98%
Chemical Name:	1-(3,4-dihydro-6,7-dimethoxy-2(1H)-isoquinolinyl)-3-(1-methyl-2-phenyl-1H-pyrrolo[2,3-b]pyridin-3-yl)-2-propen-1-one
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 65 mM · Absolute ethanol ≤ 65 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 0.5 mg in 110 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. 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
· Facilitates the production of anterior ectoderm from mouse induced pluripotent stem cells (Oshima et al.).
· Inhibits myofibroblast differentiation of normal human dermal fibroblasts (Jinnin et al.).

References

Jinnin M et al. (2006) Characterization of SIS3, a novel specific inhibitor of Smad3, and Its effect on transforming growth factor-β1-induced extracellular matrix expression. Mol Pharmacol 69(2): 597–607.
Oshima K et al. (2010) Mechanosensitive hair cell-like cells from embryonic and induced pluripotent stem cells. Cell 141(4): 704–16.

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