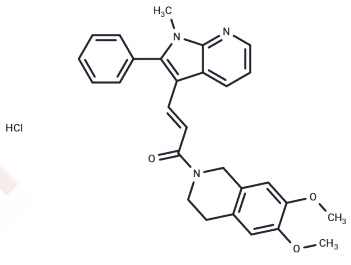
Data Sheet (Cat.No.T3636)

TargetMol

(E)-SIS3

Chemical Properties



CAS No. : 521984-48-5

Formula: C28H27N3O3·HCl

Molecular Weight: 489.99

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	(E)-SIS3 (SIS3), a selective Smad3 inhibitor, can attenuate TGF-β1-dependent Smad3 phosphorylation and DNA binding. It has no effect on p38 MAPK, Smad2, ERK or PI3K signaling. It also inhibits TGF-β1-induced myofibroblast differentiation of dermal fibroblasts and inhibits TGF-β2-induced endothelial cell differentiation in iPSCs.
Targets(IC50)	TGF-beta/Smad
In vitro	Addition of SIS3 attenuates the effects of TGF-β1 by reducing the transcriptional activity. SIS3 also inhibits the myofibroblast differentiation of fibroblasts by TGF-β1. SIS3 completely diminishes the constitutive phosphorylation of Smad3 as well as the up-regulated type I collagen expression in scleroderma fibroblasts, thus abolishes the ECM overexpression in the TGF-β1-treated normal dermal fibroblasts and scleroderma fibroblasts in vitro[1].
In vivo	SIS3 inhibits Smad3 activation in streptozotocin(STZ)-induced diabetic nephropathy in Tie2-Cre;Loxp-EGFP mice. It also reduces AGE-induced EndoMT and decreases EndoMT in STZ-induced diabetic nephropathy in Tie2-Cre;Loxp-EGFP mice. SIS3 significantly reduces collagen IV and fibronectin expression in the glomeruli and tubulointerstitium of STZ-injected Tie2-Cre;Loxp-EGFP mice, suggesting that SIS3 retards the early development of STZ-induced diabetic glomerulosclerosis and tubulointerstitial fibrosis. However, SIS3 administration does not reduce proteinuria[2].
Cell Research	Normal human dermal fibroblasts are plated at a density of 105 cells/well in six-well culture plates and grown until subconfluence in MEM containing 10% FCS. Cells are quiesced by 24-h incubation in serum-free MEM, followed by incubation in serum-free medium in the presence or absence of SIS3 before the collection of cells for 72 h. Then, the cells are detached from the wells by trypsin treatment and counted using a Coulter counter.(Only for Reference)

Solubility Information

Solubility	Ethanol: 23 mg/mL (46.94 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), DMSO: 90 mg/mL (183.68 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.0409 mL	10.2043 mL	20.4086 mL
5 mM	0.4082 mL	2.0409 mL	4.0817 mL
10 mM	0.2041 mL	1.0204 mL	2.0409 mL
50 mM	0.0408 mL	0.2041 mL	0.4082 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Jinnin M, et al. Mol Pharmacol. 2006, 69(2):597-607.
Xu J, Ma L, Wang D, et al. Uncarboxylated osteocalcin promotes proliferation and metastasis of MDA-MB-231 cells through TGF-β/SMAD3 signaling pathway. BMC Molecular and Cell Biology. 2022, 23(1): 1-17
Li J, et al. Diabetes. 2010, 59(10):2612-24.
Yao H, Qian J, Bian X, et al.miR-27b-3p reduces muscle fibrosis during chronic skeletal muscle injury by targeting TGF-βR1/Smad pathway.Journal of Orthopaedic Surgery and Research.2024, 19(1): 329.
The TRPV1-PKM2-SREBP1 axis maintains microglial lipid homeostasis in Alzheimer's disease[J]. Cell Death & Disease, 2025, 16(1): 14.