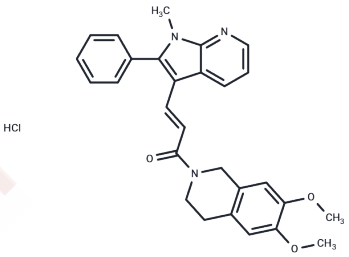
Data Sheet (Cat.No.T3636)

TargetMol

(E)-SIS3

Chemical Properties



CAS No. :	521984-48-5
Formula:	C28H27N3O3·HCl
Molecular Weight:	489.99
Storage:	Powder: -20°C for 3 years | In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.

Biological Description

Description	(E)-SIS3 (SIS3) is a Smad3 inhibitor (IC50=3 μM) and is selective. (E)-SIS3 inhibits the differentiation of fibroblasts into myofibroblasts via TGF-β1.
Targets(IC50)	TGF-beta/Smad
In vitro	**METHODS**: Human dermal fibroblasts were treated with (E)-SIS3 (10 μM) for 24 hours, and the expression levels of target proteins were detected by Western Blot and Immunoprecipitation. **RESULTS**: (E)-SIS3 attenuated TGF-beta1-induced Smad3 phosphorylation and Smad3 / Smad4 interaction. [1] **METHODS**: Human dermal fibroblasts were treated with (E)-SIS3 (0.1-50 μM) for 30 minutes, and the expression levels of target proteins were detected by Western Blot. **RESULTS**: (E)-SIS3 significantly inhibited the expression of FN and α-SMA, but not the expression of Sphk2 induced by TGF-β1. [2] **METHODS**: Human dermal fibroblasts were treated with (E)-SIS3 (10 μM) for 24 hours, and the expression levels of target proteins were detected by Western Blot. **RESULTS**: (E)-SIS3 significantly decreased the expression of α-SMA and Palladin in primary human dermal fibroblasts. [3]
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: 100 mg/mL (204.09 mM),Sonication and heating are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 3.3 mg/mL (6.73 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Jinnin M, et al. Characterization of SIS3, a novel specific inhibitor of Smad3, and its effect on transforming growth factor-beta1-induced extracellular matrix expression. Mol Pharmacol. 2006 Feb;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
Zhu X, et al. Sphingosine kinase 2 cooperating with Fyn promotes kidney fibroblast activation and fibrosis via STAT3 and AKT. Biochim Biophys Acta Mol Basis Dis. 2018 Nov;1864(11):3824-3836.
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.
Liu J, et al. Topical TWEAK Accelerates Healing of Experimental Burn Wounds in Mice. Front Pharmacol. 2018 Jun 21;9:660.
The TRPV1-PKM2-SREBP1 axis maintains microglial lipid homeostasis in Alzheimer's disease[J]. Cell Death & Disease, 2025, 16(1): 14.