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DATASHEET

SB 431542

Product overview

Name	SB 431542
Cat No	HB3555
Biological action	Inhibitor
Purity	>98%
Description	Potent, selective TGF-βRI ALK5, ALK4, ALK7 inhibitor. Induces sheet formation, proliferation, differentiation of ESC-derived endothelial cells and replaces SOX2 in reprogramming protocols.3D growth matrix component and can be used in production of organoids.

Biological Data

Biological description

Potent and selective transforming growth factor β type I receptor (TGF-βRI) actvin receptor-like kinase ALK5, ALK4 and ALK7 inhibitor (IC_{50} = 94 nM at ALK5).

Specifically inhibits Smad2/3 activation and blocks TGF-β signal transduction.

Maintains the undifferentiated state of mouse embryonic stem cells (ESCs).

Also induces sheet formation, proliferation, differentiation of ESC-derived endothelial cells.

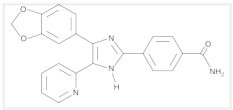
It additionally can be used as a 3D growth matrix component and can be used in production of organoids (e.g. brain/ blood vessel organoids).

It can also be used to replace the SOX2 factor in reprogramming protocols.

Solubility & Handling

Storage instructions	Room temperature
Solubility overview	Soluble in DMSO (100mM) and ethanol (10mM)
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

Chemical Data

Chemical name	4-[4-(1,3-benzodioxol-5-yl)-5-(2-pyridinyl)-1H-imidazol-2-yl]-benzamide
Molecular Weight	384.4
Chemical structure	
Molecular Formula	$C_{22}H_{16}N_4O_3$
CAS Number	301836-41-9
PubChem identifier	4521392
SMILES	C1OC2=C(O1)C=C(C=C2)C3=C(NC(=N3)C4=CC=C(C=C4)C(=O)N)C5=CC=CC=N5
Source	Synthetic
InChi	InChI=1S/C22H16N4O3/c23-21(27)13-4-6-14(7-5-13)22-25-19(20(26-22)16-3-1-2-10-24-16)15-8-9-17-18(11-15)29-12-28-17/h1-11H,12H2,(H2,23,27)(H,25,26)

InChiKey	FHYUGAJXYORMHI-UHFFFAOYSA-N
MDL number	MFCD11045982
Appearance	Yellow solid

References

Inhibition of transforming growth factor (TGF)-beta1-induced extracellular matrix with a novel inhibitor of the TGF-beta type I receptor kinase activity: SB-431542.

Laping et al (2002) Mol Pharmacol 62(1)
PubMedID 12065755

SB-431542 is a potent and specific inhibitor of transforming growth factor-beta superfamily type I ALK receptors ALK4, ALK5, and ALK7.

Inman et al (2002) Mol Pharmacol 62(1)
PubMedID 12065756

TGF-beta receptor kinase inhibitor enhances growth and integrity of embryonic stem cell-derived endothelial cells.

Watabe et al (2003) J Cell Biol 163(6)
PubMedID 14676305

Mechanism of SB431542 in inhibiting mouse embryonic stem cell differentiation.

Du et al (2014) Cell Signal 26(10)
PubMedID 24949833