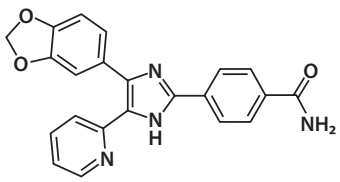
Miltenyi Biotec

StemMACS™ SB431542

5 mg	130-105-336
2×5 mg	130-106-275

Contents

1. Description

Components	StemMACS™ SB431542. A small molecule inhibitor of TGF-β signaling.
Size	5 mg; 2×5 mg
Product format	White solid
Molecular weight	384.39
CAS number	301836-41-9
Systematic name	4-[4-(1,3-benzodioxol-5-yl)-5-pyridin-2-yl-1*H*-imidazol-2-yl]benzamide
Molecular formula	$C_{22}H_{16}N_4O_3$
Structure	
Purity	>98%
Solubility	Soluble in DMSO.
Storage	Store powder at –20 °C. After reconstitution, store aliquots at –20 °C. Protect from light.

1.1 Background information

StemMACS™ SB431542 is a potent inhibitor of the TGF-beta, Activin and Nodal signaling pathway. SB431542 inhibits the activin receptor like kinases ALK4, ALK5, and ALK7 thereby preventing the phorphorylation of their downstream targets SMAD2 and SMAD3. The inhibition is selective and does not affect BMP signaling via the related kinases ALK1, ALK2, ALK3, and ALK6. In pluripotent stem cell research, SB431542 is used in combination with other small molecules to improve reprogramming and induce differentiation, e.g., into neural lineages.

2. Protocol

2.1 Preparation of stock solution

Effective concentrations of StemMACS™ SB431542 for cell culture applications range from 2 µM to 10 µM. A 10 mM stock solution in DMSO will be appropriate for most applications and can be prepared as follows:

1. Reconstitute the entire vial contents by adding 1300 µL of pure DMSO. Warm to 37 °C for 3–5 minutes to facilitate solubilization.

   ▲ **Note:** The vial may have turned upside down during transportation. Gently tap prior to reconstitution to collect all powder at the bottom of the vial.

2. Prepare appropriate aliquots and store at –20 °C. Avoid repeated freeze-thaw cycles.

   ▲ **Note:** The DMSO concentration in culture should not exeed 0.5 %. Stock solutions of alternate concentration can be prepared using the following table. Add the solvent directly to the vial, it will hold up to 4 mL.

Desired stock	1 mM	2 mM	5 mM	10 mM
Volume of DMSO to add	Dilute 1:10 from a 10 mM stock	Dilute 1:5 from a 10 mM stock	2600 µL	1300 µL

2.2 Use in cell culture

1. Thaw aliquots at 37 °C as needed.
2. To avoid precipitation, prewarm the cell culture media prior to adding the reconstituted compound.
3. Mix and filter the supplemented media through a 0.2 µm low-protein binding filter.

Refer to **www.miltenyibiotec.com** for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com/local to find your nearest Miltenyi Biotec contact.

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