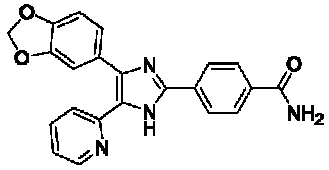
Product Specification Sheet

Product Name	Stemolecule™ SB431542
Description	Stemolecule SB431542 is an inhibitor of the TGF-β1 activin receptor-like kinases (ALKs). It is a selective and potent inhibitor of ALK-4, -5 and -7. SB431542 inhibits endogenous activin and TGF-β signaling without affecting more divergent BMP signaling utilizing ALK-1, -2, -3, and -6[1,2]. SB431542 stimulates proliferation, differentiation, and sheet formation of endothelial cells derived from embryonic stem cells[3].
Catalog Number	AMS.04-0010
Size	5 mg
Alternate Name	4-[4-(1,3-benzodioxol-5-yl)-5-pyridin-2-yl-1H-imidazol-2-yl]benzamide
Chemical Formula	$C_{22}H_{16}N_4O_3$
Structure	
Molecular Weight	384.4
CAS Number	301836-41-9 (anhydrous)
Purity	Greater than 98% by HPLC analysis
Formulation	White solid
Solubility	For a 10 mM concentrated stock solution of SB431542, reconstitute the compound by adding 1.3 ml of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37°C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is greater than 0.5%. This molecule is soluble in DMSO at 100 mM.
Storage and Stability	Store powder at 4°C protected from light. Following reconstitution, store aliquots at -20°C. Stock solutions are stable for 6 months when stored as directed.
Quality Control	The purity of SB431542 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of SB431542 was tested on mouse embryonic stem cells.

References

1. Laping, N.J., Grygielko, E., Mathur, A., Butter, S., Bomberger, J., Tweed, C., Martin, W., Fornwald, J., Lehr, R., Harling, J., Gaster, L., Callahan, J.F., and Olson, B.A. (2002) 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. Mol Pharmacol 62: 58-64.
2. Inman, G.J., Nicolás, F.J., Callahan, J.F., Harling, J.D., Gaster, L.M., Reith, A.D., Laping, N.J., and Hill, C.S. (2002) SB-431542 is a potent and specific inhibitor of transforming growth factor-beta superfamily type I activin receptor-like kinase (ALK) receptors ALK4, ALK5, and ALK7. Mol Pharmacol 62: 65-74.
3. Watabe, T., Nishihara, A., Mishima, K., Yamashita, J., Shimizu, K., Miyazawa, K., Nishikawa, S., and Miyazono, K. (2003) TGF-beta receptor kinase inhibitor enhances growth and integrity of embryonic stem cell-derived endothelial cells. J Cell Biol. 163: 1303-1311.

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