Small Molecules

SB202190

p38 MAPK inhibitor

Catalog # 72632 10 mg
72634 25 mg

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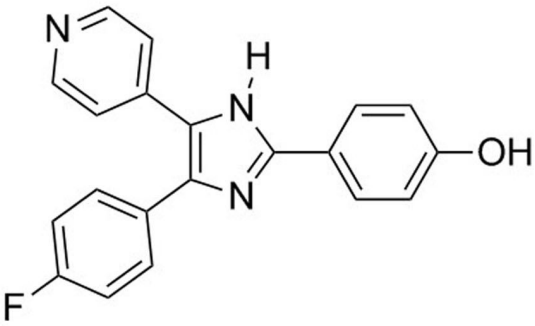
Product Description

SB202190 is a selective, potent, cell-permeable inhibitor of p38 MAP kinases, inhibiting p38α (SAPK2A, MAPK14) and p38β (SAPK2B, MAPK11) with IC_{50} values of 50 and 100 nM, respectively (Davies et al.; Jiang et al.). When tested at 10 µM, SB202190 has negligible effects on a range of other kinases, including other MAP kinases (ERKs, JNKs; Davies et al.). Pyridinyl imidazole inhibitors, including this compound, directly bind p38 MAP kinases in the ATP binding pocket (Fox et al.).

Molecular Name:	SB202190
Alternative Names:	Not applicable
CAS Number:	152121-30-7
Chemical Formula:	$C_{20}H_{14}FN_3O$
Molecular Weight:	331.3 g/mol
Purity:	≥ 98%
Chemical Name:	4-[4-(4-fluorophenyl)-5-(4-pyridinyl)-1H-imidazol-2-yl]-phenol
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 90 mM

For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 3.02 mL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported; however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

MAINTENANCE AND SELF-RENEWAL
· Improves the self-renewal ability of neural stem cells from NPC1-deficient mice (Yang et al.).
· Blocks adiponectin-mediated proliferation of hematopoietic stem cells (DiMascio et al.).
· Reduces BMP3-mediated proliferation of C3H10T1/2 mesenchymal stem cells (Stewart et al.).
DIFFERENTIATION
· Induces cardiomyocyte differentiation from human embryonic stem cells (Graichen et al.).

References

Davies SP et al. (2000) Specificity and mechanism of action of some commonly used protein kinase inhibitors. Biochem J 351(1): 95–105.
DiMascio L et al. (2007) Identification of adiponectin as a novel hemopoietic stem cell growth factor. J Immunol 178(6): 3511–20.
Fox T et al. (1998) A single amino acid substitution makes ERK2 susceptible to pyridinyl imidazole inhibitors of p38 MAP kinase. Protein Sci 7(11): 2249–55.
Graichen R et al. (2008) Enhanced cardiomyogenesis of human embryonic stem cells by a small molecular inhibitor of p38 MAPK. Differentiation 76(4): 357–70.
Jiang Y et al. (1996) Characterization of the structure and function of a new mitogen-activated protein kinase (p38). J Biol Chem 271(30): 17920–6.
Stewart A et al. (2010) BMP-3 promotes mesenchymal stem cell proliferation through the TGF-beta/activin signaling pathway. J Cell Physiol 223(3): 658–66.
Yang S-R et al. (2006) NPC1 gene deficiency leads to lack of neural stem cell self-renewal and abnormal differentiation through activation of p38 mitogen-activated protein kinase signaling. Stem Cells 24(2): 292–8.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).