Small Molecules

SB202190

p38 MAPK inhibitor

Catalog # 72632 10 mg
72634 25 mg

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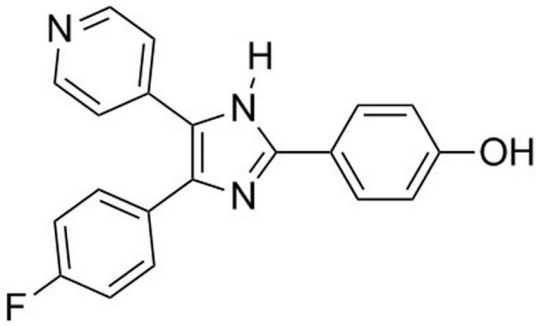
Product Description

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:	· Absolute ethanol ≤ 750 µM · DMSO ≤ 45 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).