Small Molecules

SB203580

p38 MAPK inhibitor

Catalog # 72222

5 mg

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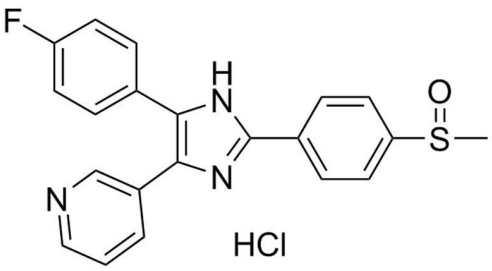
Product Description

SB203580 (Hydrochloride) is a potent inhibitor of p38 mitogen-activated protein kinase (MAPK) activity (IC_{50} = 0.6 µM). It inhibits both the α and β isoforms of p38 MAPK, and does not inhibit ERK or JNK (Bain et al.; Cuenda et al.). This product is supplied as a hydrochloride salt of the molecule, which has greater solubility than the free base form.

Molecular Name:	SB203580 (Hydrochloride)
Alternative Names:	PB 203580; RWJ 64809
CAS Number:	869185-85-3
Chemical Formula:	$C_{21}H_{16}FN_3OS \cdot HCl$
Molecular Weight:	413.9 g/mol
Purity:	≥ 98%
Chemical Name:	4-[4-(4-fluorophenyl)-2-[4-(methylsulfinyl)phenyl]-1H-imidazol-5-yl]-pyridine monohydrochloride
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.
Solubility:	· DMSO ≤ 70 mM · Absolute ethanol ≤ 70 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 5 mg in 1.21 mL of fresh 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
- Enhances the growth and self-renewal of mouse embryonic stem (ES) cells (Qi et al.).
- Promotes long-term maintenance of human naïve ground state pluripotent stem cells (Gafni et al.).
- Promotes proliferation of human endothelial progenitor cells (Seeger et al.).
- Promotes proliferation of neonatal and adult rat cardiomyocytes (Engel et al.).

DIFFERENTIATION
- Enhances differentiation of cardiomyocytes from human ES cells (Gaur et al.; Graichen et al.).
- Inhibits differentiation of cardiomyocytes from mouse ES cells by inhibition of early mesoderm (Davidson and Morange).

References

Bain J et al. (2007) The selectivity of protein kinase inhibitors: a further update. Biochem J 408(3): 297–315.
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Gaur M et al. (2010) Timed inhibition of p38MAPK directs accelerated differentiation of human embryonic stem cells into cardiomyocytes. Cytotherapy 12(6): 807–17.
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Qi X et al. (2004) BMP4 supports self-renewal of embryonic stem cells by inhibiting mitogen-activated protein kinase pathways. Proc Natl Acad Sci U S A 101(16): 6027–32.
Seeger FH et al. (2005) p38 mitogen-activated protein kinase downregulates endothelial progenitor cells. Circulation 111(9): 1184–91.

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