**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$_{3}$OS · 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:**

![Chemical Structure of SB203580](image)

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**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 ≤ 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 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 & Morange).

References

Cuenda A et al. (1995) SB 203580 is a specific inhibitor of a MAP kinase homologue which is stimulated by cellular stresses and interleukin-1. FEBS Lett 364(2): 229–33.

Related Small Molecules

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