SB203580

p38 MAP Kinase Inhibitor

Catalog # tlrl-sb20

For research use only

Version # 15K04-MM

PRODUCT INFORMATION

Content:

• 5 mg SB203580

Storage and stability:

- SB203580 is provided as a translucent film and shipped at room temperature. Store at -20 °C in the dark. Solid product is stable 1 year at -20 °C.
- Upon resuspension, prepare aliquots of SB203580 and store at -20 °C. Avoid freeze-thaw cycles. Protect from light. Resuspended product is stable 3 month at -20 °C when properly stored.

Quality control:

- Purity: ≥98% (UHPLC)
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

SB203580 is a pyridinyl imidazole inhibitor widely used to elucidate the roles of p38 mitogen-activated protein kinase (MAPK)[1]. It inhibits p38 catalytic activity by binding to the ATP binding pocket. SB203580 also inhibits the phosphorylation and activation of protein kinase B (PKB, also known as Akt)[2]. Both kinases are involved in a wide array of signaling pathways, including the TLR signaling pathway[3]. Moreover, several studies suggest that p38 MAPKs regulate distinct phases of autophagy. p38 can elicit autophagy via Beclin1. Contrarily, p38α has also been reported to inhibit autophagy by interfering with the trafficking of Atg9. SB203580 is generally used at low concentrations (1-10 µM), as it has been reported that at high concentrations SB203580 (> 20 µM) can induce the activation of the serine/threonine kinase Raf-1[4].

CHEMICAL PROPERTIES

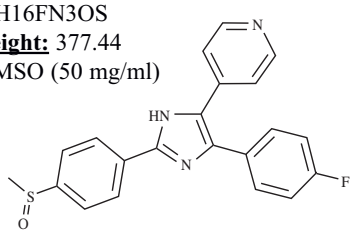
Synonym: 4-(4'-Fluorophenyl)-2-(4'-methylsulfinylphenyl)-5-(4'-pyridyl)-imidazole

Formula: C6H16FN3OS

Molecular weight: 377.44

Solubility: DMSO (50 mg/ml)

Structure:



METHODS

Preparation of sterile stock solution (25 mM)

1. Add 530 µl DMSO to 5 mg of SB203580.
2. Vortex until complete solubilization.
3. Aliquote and store at -20 °C.
4. Once SB203580 is solubilized, dilutions can be prepared using aqueous buffers.

Working concentration: 1-10 µM

PROTOCOLS

For reference only; as described in the indicated publications.

Cell Culture Assay[3]

Cells: Mouse bone-marrow derived immature dendritic cells
Working concentration: 1-10 µM
Incubation time: 1-2 h
Methods: RT-PCR and Western blot

Cell Culture Assay[5]

Cells: Primary cardiac fibroblasts
Working concentration: 10 µM
Incubation time: 45 min
Methods: Western blot and assays to measure collagen synthesis

1. 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. 364:229-233. **2. Lali FV. et al., 2000.** The pyridinyl imidazole inhibitor SB203580 blocks phosphoinositide-dependent protein kinase activity, protein kinase B phosphorylation, and retinoblastoma hyperphosphorylation in interleukin-2-stimulated T cells independently of p38 mitogen-activated protein kinase. J Biol Chem. 275(10):7395-402. **3. Jarnicki AG. et al., 2008.** Attenuating Regulatory T Cell Induction by TLR Agonists through Inhibition of p38 MAPK Signaling in Dendritic Cells Enhances Their Efficacy as Vaccine Adjuvants and Cancer Immunotherapeutics. J. Immunol., 180: 3797 - 3806.**4. Kalmes A et al., 1999.** Raf-1 is activated by the p38 mitogen-activated protein kinase inhibitor, SB203580. FEBS Lett. 444(1):71-4. **5. Mir SA. et al., 2012.** Inhibition of signal transducer and activator of transcription 3 (STAT3) attenuates interleukin-6 (IL-6)-induced collagen synthesis and resultant hypertrophy in rat heart. J Biol Chem. 287(4):2666-77.

RELATED PRODUCTS

Product	Description	Cat. Code
AZD6244	MEK1/2 Inhibitor	inh-ad62
PD0325901	MEK Inhibitor	inh-pd32
SB202190	MAP Kinase Inhibitor	tlrl-sb90

TECHNICAL SUPPORT
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