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**SB203580**

5 mg

#5633  
Store at -20C

**For Research Use Only. Not for Use in Diagnostic Procedures.**

## Background

p38 MAP kinase (MAPK), also called RK (1) or CSBP (2), is the mammalian orthologue of the yeast HOG kinase that participates in a signaling cascade controlling cellular responses to cytokines and stress (1-4). Four isoforms of p38 MAPK, p38 $\alpha$ ,  $\beta$ ,  $\gamma$  (also known as Erk6 or SAPK3), and  $\delta$  (also known as SAPK4) have been identified. Similar to the SAPK/JNK pathway, p38 MAPK is activated by a variety of cellular stresses, including osmotic shock, inflammatory cytokines, lipopolysaccharide (LPS), UV light, and growth factors (1-5). MKK3, MKK6, and SEK activate p38 MAPK by phosphorylation at Thr180 and Tyr182. Activated p38 MAPK has been shown to phosphorylate and activate MAPKAP kinase 2 (3) and to phosphorylate the transcription factors ATF-2 (5), Max (6), and MEF2 (5-8). SB203580 (4-(4-fluorophenyl)-2-(4-methylsulfinylphenyl)-5-(4-pyridyl)-imidazole) is a selective inhibitor of p38 MAPK. This compound inhibits the activation of MAPKAP-2 by p38 MAPK and subsequent phosphorylation of HSP27 (9). SB203580 inhibits p38 MAPK catalytic activity by binding to the ATP-binding pocket, but does not inhibit phosphorylation of p38 MAPK by upstream kinases (10).

## Molecular Formula

C<sub>21</sub>H<sub>16</sub>FN<sub>3</sub>OS

## Molecular Weight

377.4 g/mol

## Purity

>98%

## CAS

152121-47-6

## Solubility

Soluble in DMSO at 100mg/ml and EtOH at 10mg/ml.

## Storage

Store lyophilized or in solution at -20°C, desiccated. Protect from light. In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.

## Directions for Use

SB203580 is supplied as a lyophilized white powder. For 10 mM stock, resuspend 5 mg of the inhibitor in 1.32 ml DMSO. Aliquot and freeze at -20°C to avoid multiple freeze/thaw cycles which can degrade the inhibitor. For experiments with cultured cells, we recommend pre-treating the cells with SB203580 at 10  $\mu$ M for one to two hours prior to stimulation. This product is for *in vitro* research use only and is not intended for use in humans or animals.

## Background References

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