Revision 6

Store at -20C

#9913

Phospho-p38 MAPK Pathway Antibody Sampler Kit

1 Kit (6 x 20 microliters)

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
Phospho-MSK1 (Thr581) Antibody	9595	20 µl	90 kDa	Rabbit
Phospho-p38 MAPK (Thr180/Tyr182) (D3F9) XP® Rabbit mAb	4511	20 µl	43 kDa	Rabbit IgG
Phospho-MKK3 (Ser189)/MKK6 (Ser207) (D8E9) Rabbit mAb	12280	20 µl	38 MKK6, 40 MKK3 kDa	Rabbit IgG
Phospho-HSP27 (Ser82) (D1H2F6) XP® Rabbit mAb	9709	20 µl	27 kDa	Rabbit IgG
Phospho-MAPKAPK-2 (Thr334) (27B7) Rabbit mAb	3007	20 µl	49 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat
Phospho-ATF-2 (Thr71)/ATF-7 (Thr53) (A8J7P) Rabbit mAb	15411	20 µl	65,75 kDa	Rabbit IgG

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The Phospho-p38 MAPK Pathway Antibody Sampler Kit provides an economical means to evaluate the activation status of multiple members of the p38 MAPK pathway, including phosphorylated MSK1, p38 MAPK, MKK3/MKK6, ATF-2, HSP27 and MAPKAPK-2. The kit includes enough primary and secondary antibodies to perform two Western blot experiments.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

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, p38α, β, γ (also known as Erk6 or SAPK3), and δ (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 MAPKAPK-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).

Four residues (Thr25, Thr222, Ser272 and Thr334) of MAPKAPK-2 are phosphorylated by p38 in an in vitro kinase assay (3). Phosphorylation at Thr222, Ser272 and Thr334 seems to be essential for the activity of MAPKAPK-2 (3). Activated MAPKAPK-2 can in return phosphorylate HSP27 at serines 15, 78 and 82 (3,9). Phosphorylation of HSP27 causes a change in the tertiary structure of HSP27, which shifts from large homotypic multimers to dimmers and monomers (10). It has been illustrated that phosphorylation and increased concentration of HSP27 modulate actin polymerization and reorganization (11,12).

Background References

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Limited Uses