

# p38 $\alpha$ MAP Kinase (Tyr-323), phospho-specific

Cat. # PP3411

Host Rabbit Polyclonal

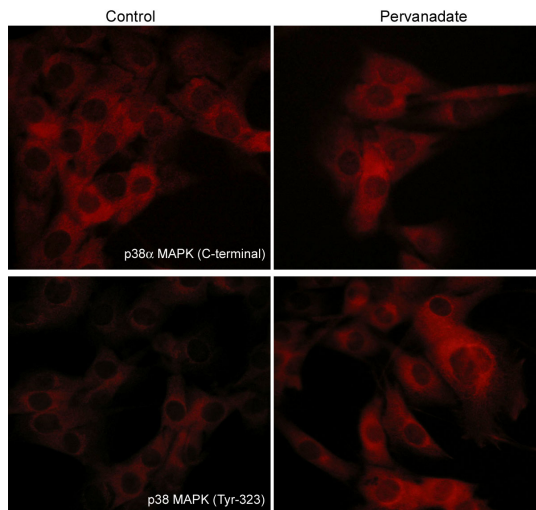
Size 100  $\mu$ l

## Background:

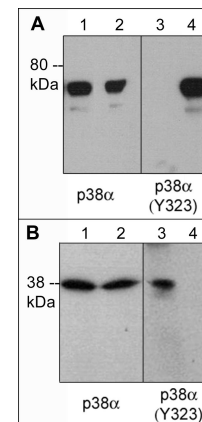
p38 MAP kinase (MAPK), also called RK, CSBP, and SAPK2a, is the mammalian orthologue of the yeast HOG kinase. This family of kinases participates in signaling cascades that control cellular responses to cytokines and stress. Four isoforms of p38 MAPK ( $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ) have been identified. Similar to the SAPK/JNK pathway, p38 MAPK is activated by a variety of cellular stresses including osmotic shock, inflammatory cytokines, lipopolysaccharides, UV light, and growth factors. MKK3 and SEK activate p38 MAPK by dual phosphorylation at Thr-180/Tyr-182. Activated p38 MAPK has been shown to phosphorylate and activate MAPKAP kinase 2 and to phosphorylate the transcription factors ATF-2, Max and MEF2. T cells possess an alternative pathway for p38 activation where stimulation of the antigen receptor (TCR) induces phosphorylation of p38 on Tyr-323. This site is required for TCR-mediated phosphorylation of Thr-180 and catalytic activity. Thus, Tyr-323 may also have important roles in regulating p38 MAP kinase pathways.

## References

- Han, J. et al. (1994) *Science* 265:808.  
 Lee, J. C. et al. (1994) *Nature* 372:739.  
 Salvador, J.M. et al. (2005) *Nat Immunol.* 6(4):390.  
 Jirmanova, L. et al. (2009) *Blood* 113(10):2229.



Immunocytochemical labeling of p38 MAPK in pervanadate-treated mouse C2C12. The cells were labeled with mouse monoclonal p38 $\alpha$  MAPK and rabbit polyclonal p38 MAPK (Tyr-323) antibodies, then the antibodies were detected using appropriate secondary antibodies conjugated to Cy3.



**A)** Western blot image of GST-recombinant p38 (K53M) mutant kinase untreated (lanes 1 & 3) or treated with Fyn kinase (lanes 2 & 4). **B)** Western blot analysis of p38 phosphorylation in mouse macrophages stimulated with 1 mM pervanadate for 30 min. (lanes 1 & 3) then the blot was treated with alkaline phosphatase (lanes 2 & 4). Both blots were probed with anti-p38 $\alpha$  (a.a. 319-328) (lanes 1 & 2) or anti-p38 $\alpha$  (Tyr-323) (lanes 3 & 4).

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**Size** 100  $\mu$ l

## **Immunogen:**

Phospho-p38 $\alpha$  MAP Kinase (Tyr-323) synthetic peptide (coupled to KLH) corresponding to amino acid residues surrounding tyrosine 323 in mouse p38 $\alpha$ . This peptide sequence is highly conserved in human and rat p38 $\alpha$ , and has high homology to the conserved site in p38 $\beta$ .

## **Buffer and Storage:**

Rabbit polyclonal, affinity-purified antibody is supplied in 100  $\mu$ l phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at  $-20^{\circ}\text{C}$ . Do not aliquot. Stable for 1 year.

## **Applications:**

WB 1:1000  
ELISA 1:2000  
ICC 1:300

End user should determine optimal dilution for their particular applications and experiments.  
Western blot membranes were incubated with diluted antibody in 5% non-fat milk, PBS, 0.04% Tween20 for 1 hour at room temperature.

## **Specificity:**

This antibody was cross-adsorbed to a phospho-tyrosine peptide before affinity purification using phospho-p38 $\alpha$  (Tyr-323) peptide (without carrier). The antibody detects a 38 kDa\* band corresponding to p38 $\alpha$  on SDS-PAGE immunoblots of human Jurkat, K562, and mouse macrophage (J774A.1) cells treated with pervanadate. In addition, the antibody detects recombinant p38 MAP Kinase when treated with Fyn kinase (The *in vitro* kinase model was kindly provided by Dr. Paul Mittelstadt from the Laboratory of Immune Cell Biology at the NCI.)

\*All molecular weights (MW) are confirmed by comparison to Bio-Rad Rainbow Markers and to western blot mobilities of known proteins with similar MW.

## **Related Products:**

PM1381 p38 $\alpha$  MAP Kinase (C-terminal) Mouse Monoclonal  
PM1391 p38 MAP Kinase (Thr-180/Tyr-182), phospho-specific Mouse  
MK6050 MAP Kinase Activation Antibody Sampler Kit  
PX3415 phospho-p38 $\alpha$  MAP Kinase (Tyr-323) Peptide  
EM2061 ERK1/2 (Thr-202/Tyr-204), phospho-specific Mouse Monoclonal  
EM2331 ERK1 (C-terminal Region) Mouse Monoclonal

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