Qty: 100 µg/200µl

Catalog No. 33-1300

Mouse Monoclonal

Antibody to p38

Lot No.

MONOCLONAL MOUSE ANTI-p38-α-MAP KINASE

FORM:
This antibody is highly purified from mouse ascites by protein A-affinity chromatography. It is supplied as a 200 µl aliquot at a concentration of 0.5 mg/ml in phosphate buffered saline, pH 7.4, containing 0.1% sodium azide.

ANTIBODY SUMMARY:
Immunogen: Full-length recombinant mouse p38 protein.
Clone: p38-3F11 **Isotype**: IgG_{2a}-kappa

SPECIFICITY:
This affinity purified antibody reacts specifically with p38-α-MAP kinase and does not cross-react with other MAP kinases. The immunoreactive epitope has not yet been identified.

REACTIVITY:
Reactivity has been confirmed by Western blotting using lysates derived from the following cell lines: J774A.1(mouse macrophage), BHK (hamster kidney), CHO (hamster ovary), COS (monkey kidney), Jurkat, PC-12, NIH 3T3, C_2C_{12} (mouse myoblast), and L929. Species Reactivity: human, mouse, rat, hamster, monkey.

BACKGROUND:
Recent studies on mitogen-activated protein kinases (MAPKs) have uncovered the presence of at least three distinct MAP kinase pathways in mammalian cells[reviewed in 1]. These MAP-kinase cascades are utilized by the cell for related yet distinct signaling pathways, thereby functioning as separate modules containing sequentially acting signaling elements. Each MAPK module consists minimally of three protein kinases: a MAPK kinase kinase (MEKK), a MAPK kinase (MEK or MKK), and a MAPK. The terminal MAPKs components of the three cascades are grouped as follows:

1. ERKs- extracellular signal regulated kinases
2. JNKs/SAPKs- c-Jun amino terminal kinases/stress-activated protein kinase
3. p38/HOG- related to the yeast HOG1 protein and also referred to as CSBP1&2, RK, or Mpk2 (cont'd)

As suggested by their name, the ERKs are regulated predominantly by extracellular ligands which act though transmembrane receptors with intrinsic or associated tyrosine kinase activity. On the other hand, the JNKs and p38 are activated by pro-inflammatory cytokines and environmental stress such as osmotic shock, and UV light. One important feature shared by the ERK, JNK and p38 kinases is the presence of the regulatory motif Thr-X-Tyr. Each kinase group, however, possess a distinct amino acid in the central (X) position: ERKs have a glutamic acid (Glu), JNKs have a proline (Pro), and p38 has a glycine (Gly). Phosphorylation of both the conserved threonine and tryosine residues by a dual specificity MEK (MKK) is required for kinase activation. Once activated, the MAP kinases phosphorylate their substrates on serine and/or threonine residues with consequent effect on the substrate's function and/or activity.

The p38 (CSBP, RK, or Mpk2) protein is the newest member of the MAPK family to be isolated[1-12]. This protein was originally identified as a kinase which was phosphorylated on tyrosine in response to

(cont'd)

treatment of cells with LPS[2]. Subsequently, p38 (CSBP1/CSBP2) was identified as the target of pyridinyl-imidazole compounds (eg: SB 203580) which inhibit the production of interleukin-1 and tumor necrosis factor from stimulated human monocytes[3]. CSBP1 and CSBP2 were found to be splice variants of p38 which differed only in an internal 25 amino acid sequence[3]. As described above, p38 and JNKs appear to be activated by many of the same stimuli; nevertheless, differences in the extent and timing of activation of p38 and JNK have been observed[4]. Further, p38 and JNKS are activated by distinct MAPK kinases. For example, MKK4 activates both JNK and p38, whereas MKK3 and MKK6 activate p38 specifically[5,6]. Studies have implicated p38 in the phosphorylation of the small heat shock proteins Hsp27, MAPKAP kinase -2 and -3, and the transcriptions factors ATF2, Elk-1 and CHOP[7-11]. In addition, p38 likely mediates increased cytokine expression and some aspects of programmed cell death[3,12]. Clearly, future research will focus on gaining greater insights into the multiple physiological functions of the p38 protein in different cell types.

USAGE:

The concentrations listed below are good starting points; however, optimal concentrations of the antibody should be determined by the investigator for each application.

ELISA: 0.1-1 µg/ml
Western Blotting: 1 µg/ml

RELATED PRODUCTS:

Description	Cat. No.	Clone (s)
Anti-MAP Kinase (ERK1 & ERK2)	13-6200	ERK-7D8
-HRP Conjugate	13-6220	ERK-7D8
-Sepharose®4B conjugate	13-6241	ERK-7D8
Anti-MAP Kinase (ERK1 & ERK2)	61-7400	Polyclonal
-HRP Conjugate	61-7420	Polyclonal
Anti-MAP Kinase (ERK1 & ERK2)	13-7400	ZK1.2
Anti-MAP Kinase (ERK1)	13-8600	ERK-6B11
Anti-MAP Kinase (ERK2)	13-4800	107
Anti-MAP Kinase (ERK2)	71-1800	Polyclonal
Map Kinase Sampler Pack	90-6200	Various
Anti-MEK1	13-3500	3D9
Anti-MKP	71-2600	Polyclonal
Anti-Phosphotyrosine	13-5900	PY-7E1
Anti-Phosphotyrosine	13-6300	PY-1B2
Anti-Phosphotyrosine	03-7700	PY20
PY-*Plus*™(Anti-PY cocktail)	13-6600	PY-7E1,PY-1B2,PY20

STORAGE:

This antibody should be stored at 2-8°C for up to one month. For long term storage, -20°C is recommended; however, repeated freezing and thawing cycles should be avoided.

References:

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3. Lee, J.C., et al. (1994) *Nature* 372:739-746.
4. Raingeaud, J., et al. (1995) *J. Biol. Chem.* 270:7420-7426.
5. Derijard, B., et al. (1995) Science 267: 682:
6. Raingeaud, J., et al. (1996) *Mol. Cell. Biol.* 16:1247-1255.
7. Freshney, N.W., et al. (1994) *Cell* 78:1039-1049.
8. Rouse, J.P., (1994) *Cell* 78:1027-1037.
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11. Wang, X., et al. (1996) *Science* 272:1347-1349.
12. Xia, Z., et al. (1995) Science 270:1326-1331.

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