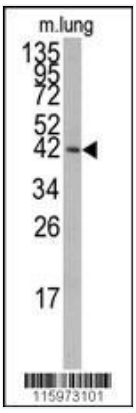
MAP Kinase 14 (MAPK14) Antibody – Rabbit Polyclonal

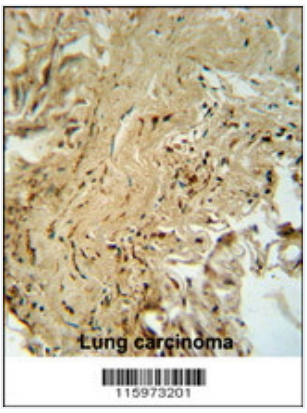
PRODUCT OVERVIEW

Product Name	MAP Kinase 14 (MAPK14), Polyclonal Antibody
Full Product Name	MAP Kinase 14 (Thr180/Tyr182) (Mitogen-activated Protein Kinase 14, MAPK 14, MAPK14, Mitogen-activated Protein Kinase p38alpha, MAP Kinase p38alpha, Cytokine Suppressive Anti-inflammatory Drug binding Protein, CSAID Binding Protein, CSBP, MAX-interacting
Product Gene Name	anti-MAPK14 antibody
Product Synonym Names	EC=2.7.11.24
Clonality	Polyclonal
Isotype	IgG
Host	Rabbit
Species Reactivity	Human, Mouse
Form/Format	Supplied as a liquid in PBS, pH 7.2. No preservative added. Labeled with Biotin.
Purity/Purification	Purified by Immunoaffinity chromatography.
Specificity	Recognizes human MAPK14. Species Crossreactivity: mouse.
Preparation and Storage	Store product at 4 degree C if to be used immediately within two weeks. For long-term storage, aliquot to avoid repeated freezing and thawing and store at -20 degree C. Aliquots are stable at -20 degree C for 12 months after receipt. Dilute required amount only prior to immediate use. Further dilutions can be made in assay buffer. For maximum recovery of product, centrifuge the original vial after thawing and prior to removing the cap.
Molecular Weight	41,293 Da
Chromosome Location	Chromosome: 6; NC_000006.11 (35995454..36079013). Location: 6p21.3-p21.2
OMIM	600289
3D Structure	ModBase 3D Structure for Q16539
Immunogen	Synthetic non-phosphopeptide corresponding to amino acid residues surrounding Thr180 of human MAPK14 (KLH).
Conjugate	Biotin
Note	Preservative Free
Product Categories/Family for anti-MAPK14 antibody	Antibodies; Protein Kinases
Applications Tested/Suitable for anti-MAPK14 antibody	Western Blot (WB), ELISA (EIA)
Application Notes for anti-MAPK14 antibody	WB: 1:50-1:100 ELISA: 1:1,000 Applications are based on unconjugated antibody.
Related Product Information for anti-MAPK14 antibody	MBS6486563 is an antibody targeting MAPK14. Also known as MAP Kinase 14 (Thr180/Tyr182) (Mitogen-activated Protein Kinase 14, MAPK 14, MAPK14, Mitogen-activated Protein Kinase p38alpha, MAP Kinase p38alpha, Cytokine Suppressive Anti-inflammatory Drug binding Protein, CSAID Binding Protein, CSBP, MAX-interacting. Reactive in Human, Mouse. Host: Rabbit.
Product References and Citations for anti-MAPK14 antibody	1. Cheung, P.C., et al., EMBO J. 22(21):5793-5805 (2003). 2. Dean, J.L., et al., J. Biol. Chem. 278(41):39470-39476 (2003). 3. Sun, A., et al., Exp. Neurol. 183(2):394-405 (2003). 4. Yustein, J.T., et al., Oncogene 22(40):6129-6141 (2003). 5. Frevel, M.A., et al., Mol. Cell. Biol. 23(2):425-436 (2003).

Other Notes	Small volumes of anti-MAPK14 antibody vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.



Western Blot (WB) of anti-MAPK14 antibody
Western blot analysis of anti-MAPK14 Antibody (T180/Y182) in mouse lung tissue lysates (35ug/lane). MAPK14 (arrow) was detected using the purified Pab.



Immunohistochemistry (IHC) of anti-MAPK14 antibody
MAPK14 Antibody (T180/Y182) immunohistochemistry analysis in formalin fixed and paraffin embedded human lung carcinoma followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of the MAPK14 Antibody (T180/Y182) for immunohistochemistry. Clinical relevance has not been evaluated.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for MAPK14. It may not necessarily be applicable to this product.

NCBI GI #	20986512
NCBI GeneID	1432
NCBI Accession #	NP_620581
UniProt Primary Accession #	Q16539
UniProt Secondary Accession #	O60776; Q13083; Q14084; Q8TDX0; A6ZJ92; A8K6P4; B0LPH0
UniProt Related Accession #	Q16539
GenBank Nucleotide #	NM_139012.2
NCBI Official Full Name	mitogen-activated protein kinase 14 isoform 2
NCBI Official Synonym Full Names	mitogen-activated protein kinase 14
NCBI Official Symbol	MAPK14
NCBI Official Synonym Symbols	RK; p38; CSBP; EXIP; Mxi2; CSBP1; CSBP2; CSPB1; PRKM14; PRKM15; SAPK2A; p38ALPHA
UniProt Protein Name	Mitogen-activated protein kinase 14
UniProt Synonym Protein Names	Cytokine suppressive anti-inflammatory drug-binding protein; CSAID-binding protein; CSBP; MAP kinase MXI2; MAX-interacting protein 2; Mitogen-activated protein kinase p38 alpha; MAP kinase p38 alpha; Stress-activated protein kinase 2a
Protein Family	Mitogen-activated protein kinase
UniProt Gene Name	MAPK14
UniProt Synonym Gene Names	CSBP; CSBP1; CSBP2; CSPB1; MXI2; SAPK2A; MAP kinase 14; MAPK 14; CSAID-binding protein; CSBP; MAP kinase p38 alpha; SAPK2a
UniProt Entry Name	MK14_HUMAN
NCBI Protein Information	mitogen-activated protein kinase 14; MAP kinase 14; p38alpha Exip; p38 MAP kinase; MAP kinase Mxi2; MAP kinase p38 alpha; CSAID-binding protein; Csaids binding protein; MAX-interacting protein 2; stress-activated protein kinase 2A; p38 mitogen activated p

UniProt Comments for MAPK14

Function: Serine/threonine kinase which acts as an essential component of the MAP kinase signal transduction pathway. MAPK14 is one of the four p38 MAPKs which play an important role in the cascades of cellular responses evoked by extracellular stimuli such as proinflammatory cytokines or physical stress leading to direct activation of transcription factors. Accordingly, p38 MAPKs phosphorylate a broad range of proteins and it has been estimated that they may have approximately 200 to 300 substrates each. Some of the targets are downstream kinases which are activated through phosphorylation and further phosphorylate additional targets. RPS6KA5/MSK1 and RPS6KA4/MSK2 can directly phosphorylate and activate transcription factors such as CREB1, ATF1, the NF-kappa-B isoform RELA/NFKB3, STAT1 and STAT3, but can also phosphorylate histone H3 and the nucleosomal protein HMGN1. RPS6KA5/MSK1 and RPS6KA4/MSK2 play important roles in the rapid induction of immediate-early genes in response to stress or mitogenic stimuli, either by inducing chromatin remodeling or by recruiting the transcription machinery. On the other hand, two other kinase targets, MAPKAPK2/MK2 and MAPKAPK3/MK3, participate in the control of gene expression mostly at the post-transcriptional level, by phosphorylating ZFP36 (tristetraprolin) and ELAVL1, and by regulating EEF2K, which is important for the elongation of mRNA during translation. MKNK1/MNK1 and MKNK2/MNK2, two other kinases activated by p38 MAPKs, regulate protein synthesis by phosphorylating the initiation factor EIF4E2. MAPK14 interacts also with casein kinase II, leading to its activation through autophosphorylation and further phosphorylation of TP53/p53. In the cytoplasm, the p38 MAPK pathway is an important regulator of protein turnover. For example, CFLAR is an inhibitor of TNF-induced apoptosis whose proteasome-mediated degradation is regulated by p38 MAPK phosphorylation. In a similar way, MAPK14 phosphorylates the ubiquitin ligase SIAH2, regulating its activity towards EGLN3. MAPK14 may also inhibit the lysosomal degradation pathway of autophagy by interfering with the intracellular trafficking of the transmembrane protein ATG9. Another function of MAPK14 is to regulate the endocytosis of membrane receptors by different mechanisms that impinge on the small GTPase RAB5A. In addition, clathrin-mediated EGFR internalization induced by inflammatory cytokines and UV irradiation depends on MAPK14-mediated phosphorylation of EGFR itself as well as of RAB5A effectors. Ectodomain shedding of transmembrane proteins is regulated by p38 MAPKs as well. In response to inflammatory stimuli, p38 MAPKs phosphorylate the membrane-associated metalloprotease ADAM17. Such phosphorylation is required for ADAM17-mediated ectodomain shedding of TGF-alpha family ligands, which results in the activation of EGFR signaling and cell proliferation. Another p38 MAPK substrate is FGFR1. FGFR1 can be translocated from the extracellular space into the cytosol and nucleus of target cells, and regulates processes such as rRNA synthesis and cell growth. FGFR1 translocation requires p38 MAPK activation. In the nucleus, many transcription factors are phosphorylated and activated by p38 MAPKs in response to different stimuli. Classical examples include ATF1, ATF2, ATF6, ELK1, PTPRH, DDIT3, TP53/p53 and MEF2C and MEF2A. The p38 MAPKs are emerging as important modulators of gene expression by regulating chromatin modifiers and remodelers. The promoters of several genes involved in the inflammatory response, such as IL6, IL8 and IL12B, display a p38 MAPK-dependent enrichment of histone H3 phosphorylation on 'Ser-10' (H3S10ph) in LPS-stimulated myeloid cells. This phosphorylation enhances the accessibility of the cryptic NF-kappa-B-binding sites marking promoters for increased NF-kappa-B recruitment. Phosphorylates CDC25B and CDC25C which is required for binding to 14-3-3 proteins and leads to initiation of a G2 delay after ultraviolet radiation. Phosphorylates TIAR following DNA damage, releasing TIAR from GADD45A mRNA and preventing mRNA degradation. The p38 MAPKs may also have kinase-independent roles, which are thought to be due to the binding to targets in the absence of phosphorylation. Protein O-Glc-N-acylation catalyzed by the OGT is regulated by MAPK14, and, although OGT does not seem to be phosphorylated by MAPK14, their interaction increases upon MAPK14 activation induced by glucose deprivation. This interaction may regulate OGT activity by recruiting it to specific targets such as neurofilament H, stimulating its O-Glc-N-acylation. Required in mid-fetal development for the growth of embryo-derived blood vessels in the labyrinth layer of the placenta. Also plays an essential role in developmental and stress-induced erythropoiesis, through regulation of EPO gene expression. Isoform MXI2 activation is stimulated by mitogens and oxidative stress and only poorly phosphorylates ELK1 and ATF2. Isoform EXIP may play a role in the early onset of apoptosis. Phosphorylates S100A9 at 'Thr-113'. Ref.18 Ref.19 Ref.20 Ref.22 Ref.23 Ref.24 Ref.25 Ref.26 Ref.30 Ref.31 Ref.34 Ref.39 Ref.40 Ref.42 Ref.49 Ref.50 Ref.51

Catalytic activity: ATP + a protein = ADP + a phosphoprotein.

Cofactor: Magnesium. Ref.25

Enzyme regulation: Activated by cell stresses such as DNA damage, heat shock, osmotic shock, anisomycin and sodium arsenite, as well as pro-inflammatory stimuli such as bacterial lipopolysaccharide (LPS) and interleukin-1. Activation occurs through dual phosphorylation of Thr-180 and Tyr-182 by either of two dual specificity kinases, MAP2K3/MKK3 or MAP2K6/MKK6, and potentially also MAP2K4/MKK4, as well as by TAB1-mediated autophosphorylation. MAPK14 phosphorylated on both Thr-180 and Tyr-182 is 10-20-fold more active than MAPK14 phosphorylated only on Thr-180, whereas MAPK14 phosphorylated on Tyr-182 alone is inactive. whereas Thr-180 is necessary for catalysis, Tyr-182 may be required for auto-activation and substrate recognition. Phosphorylated at Tyr-323 by ZAP70 in an alternative activation pathway in response to TCR signaling in T-cells. This alternative pathway is inhibited by GADD45A. Inhibited by dual specificity phosphatases, such as DUSP1, DUSP10, and DUSP16. Specifically inhibited by the binding of pyridinyl-imidazole compounds, which are cytokine-suppressive anti-inflammatory drugs (CSAID). Isoform Mxi2 is 100-fold less sensitive to these agents than the other isoforms and is not inhibited by DUSP1. Isoform Exip is not activated by MAP2K6. SB203580 is an inhibitor of MAPK14. Ref.5 Ref.15 Ref.17 Ref.19 Ref.21 Ref.25 Ref.28 Ref.29 Ref.32 Ref.36 Ref.37 Ref.40 Ref.61 Ref.62 Ref.63 Ref.65 Ref.67 Ref.68

Subunit structure: Binds to a kinase interaction motif within the protein tyrosine phosphatase, PTPRR

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