

## Product datasheet for MC209724

### Mapk14 (NM\_001168508) Mouse Untagged Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Mapk14 (NM_001168508) Mouse Untagged Clone
Tag:	Tag Free
Symbol:	Mapk14
Synonyms:	Crk1; Csbp1; CSBP2; Mxi2; p38; p38-alpha; p38a; p38alpha; p38MAPK; PRKM14; PRKM15
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Fully Sequenced ORF:	>MC209724 representing NM_001168508 <span style="color: red;">Red</span> =Cloning site <span style="color: blue;">Blue</span> =ORF

TTTGTGTAATACGACTCACTATAGGGCGGCCGGAATTCTGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCCCGATCGCC

ATGTCGCAGGAGAGGCCACGTTCTACCGGCAGGAGCTGAACAAGACCATCTGGGAGGTGCCGAACGAT  
 ACCAGAACCTGTCCCGGTGGGCTCGGGCGCCTATGGCTCGGTGTGTGCTGCTTTTGATACAAAGACGGG  
 GCATCGTGTGGCAGTTAAGAAGCTGTGAGACCGTTTCAGTCCATCATTCACGCCAAAAGGACCTACCGA  
 GAGTTGCGTCTGCTGAAGCACATGAAACACGAAAATGTGATTGGTCTGTTGGATGTGTTACACCCGCAA  
 GGTCACTGGAGGAATTCAATGACGTGTACCTGGTGACCCATCTCATGGGGCGGACCTGAACAACATCGT  
 GAAGTGCCAGAAGCTGACCGACGACCACGTTTCAGTTTCTCATCTACCAGATCCTCCGAGGGCTGAAGTAT  
 ATACATTCGGCTGACATAATTACAGGGACCTAAAGCCCAGCAACCTAGCTGTGAACGAAGACTGTGAGC  
 TCAAGATTCTGGATTTTGGGCTGGCTCGGCACACTGATGATGAGATGACAGGCTACGTGGCTACCAGGTG  
 GTACCGAGCCCCAGAGATCATGCTGAATTGGATGCACTATAACCAGACAGTGGATATTTGGTCCGTGGGC  
 TGCATCATGGCTGAGCTGTTGACCGGAAGAAGCTGTTTCCTGGTACAGACCATATTAACCAGCTTCAGC  
 AGATAATGCGTCTGACGGGGACACCCCTGCTTATCTCATTAAACAGGATGCCAAGCCATGAGGCAAGAAA  
 CTACATTCAGTCTCTGGCCAGATGCCGAAGATGAACCTCGCAAATGTATTTATTTGGTGCCAATCCCTTG  
 GCTGTCGACCTACTGGAGAAGATGCTCGTTTGGACTCAGATAAGAGGATCACAGCAGCCCAAGCTCTTG  
 CGCATGCCCTACTTTGCTCAGTACCAGACCCTGATGATGAGCCTGTTGCTGACCCTTATGACCAGTCCTT  
 TGAAAGCAGGGACCTTCTCATAGATGAGTGGAAGAGCCTGACCTATGATGAAGTCATCAGCTTTGTGCCA  
 CCACCCCTTGACCAAGAAGAAATGGAGTCTGA

ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
 ACAAGGATGACGACGATAAGGTTTAA

Chromatograms: [https://cdn.origene.com/chromatograms/ja1484\\_a06.zip](https://cdn.origene.com/chromatograms/ja1484_a06.zip)



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<b>Restriction Sites:</b>	Sgfl-Mlul
<b>ACCN:</b>	NM_001168508
<b>Insert Size:</b>	1083 bp
<b>OTI Disclaimer:</b>	Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).
<b>Components:</b>	The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"> <li>1. Centrifuge at 5,000xg for 5min.</li> <li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li> <li>3. Close the tube and incubate for 10 minutes at room temperature.</li> <li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li> <li>5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.</li> </ol>
<b>Note:</b>	Plasmids are not sterile. For experiments where strict sterility is required, filtration with 0.22um filter is required.
<b>RefSeq:</b>	<u>NM_001168508.1, NP_001161980.1</u>
<b>RefSeq Size:</b>	3560 bp
<b>RefSeq ORF:</b>	1083 bp
<b>Locus ID:</b>	26416
<b>UniProt ID:</b>	<u>P47811</u>
<b>Cytogenetics:</b>	17 14.85 cM
<b>Gene Summary:</b>	<p>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</p>

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 TIA

**Transcript Variant:** This variant (2) contains an alternate in-frame coding exon compared to variant 1. This results in an isoform (2) of the same size, but with a different 27 aa protein segment compared to isoform 1. **Sequence Note:** This RefSeq record was created from transcript and genomic sequence data to make the sequence consistent with the reference genome assembly. The genomic coordinates used for the transcript record were based on transcript alignments.