abcam

ab278674

# Anti-p38 (phospho T180 + Y182) antibody [P38T180Y182-E3]

Recombinant | 20ul selling size

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | Preservative: 0.02% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine), 0.1% BSA |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | Synthetic Peptide within Human MAPK14 phospho T180 + Y182. The exact immunogen used to generate this antibody is proprietary information. Database link Q16539 |
| **Clone number** | P38T180Y182-E3 |
| **Purification technique** | Affinity purification Protein A/G |
| **Light chain type** | kappa |
| **Concentration** | 0.5 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## Flow Cyt

### Tested

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|---|---|
| **Species** | Mouse |

| | |
|---|---|
| **Dilution info** | 0.001-1 µg/mL |
| **Notes** | - |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 0.001-1 µg/mL |
| **Notes** | - |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 0.001-1 µg/mL |
| **Notes** | - |

## Target data

See full target information MAPK14 pY182 + T180

**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 pro-inflammatory 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 (PubMed:9687510, PubMed:9792677). 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 (PubMed:9687510, PubMed:9792677). 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 (PubMed:11154262). MAPK14 also interacts with casein kinase II, leading to its activation through autophosphorylation and further phosphorylation of TP53/p53 (PubMed:10747897). 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 (PubMed:17003045). MAPK14 may also inhibit the lysosomal degradation pathway of autophagy by interfering with the intracellular trafficking of the transmembrane protein ATG9 (PubMed:19893488). 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 (PubMed:16932740). 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 (PubMed:20188673). 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 (PubMed:10330143, PubMed:9430721, PubMed:9858528). 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 (PubMed:11333986). Phosphorylates TIAR following DNA damage, releasing TIAR from GADD45A mRNA and preventing mRNA degradation (PubMed:20932473). 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 (PubMed:10943842). 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' (PubMed:15905572). Phosphorylates NLRP1 downstream of MAP3K20/ZAK in response to UV-B irradiation and ribosome collisions, promoting activation of the NLRP1 inflammasome and pyroptosis (PubMed:35857590). (Microbial infection) Activated by phosphorylation by M.tuberculosis EsxA in T-cells leading to inhibition of IFN-gamma production; phosphorylation is apparent within 15 minutes and is inhibited by kinase-specific inhibitors SB203580 and siRNA (PubMed:21586573).

## Storage

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| **Shipped at conditions** | Blue Ice |
| **Appropriate short-term storage duration** | 1-2 weeks |

| | |
|---|---|
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | -20°C |
| **Aliquoting information** | Upon delivery aliquot |
| **Storage information** | Avoid freeze / thaw cycle |

## Notes

**What are the advantages of a recombinant monoclonal antibody?**
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

## Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

| | |
|---|---|
| **Activity summary** | P38 also known as MAPK14 is a member of the mitogen-activated protein kinase (MAPK) family. It functions by phosphorylating various downstream substrates and plays a role in cellular responses. The molecular weight of p38 is approximately 38 kDa. This protein is widely expressed across many tissues including heart brain and lungs. Its activation by stimuli such as cytokines and stress factors helps regulate inflammation and cell cycle control. |
| **Biological function summary** | P38 is involved in several cellular processes such as inflammation cell differentiation and apoptosis. It often functions as part of a MAPK signaling complex where it serves a critical role in transmitting signals from the cell surface to the nucleus. It interacts with upstream kinases for activation and affects cellular responses by phosphorylating transcription factors and other protein kinases. Through experiments using techniques like p38 western blot and alpha ELISA scientists can monitor its activity and understand its role in cellular physiology. |
| **Pathways** | P38 signaling is integral to both the MAPK and NF-kB pathways. It helps mediate several cellular responses including inflammation and stress responses. Within these pathways p38 interacts with other proteins such as JNK and ERK which helps regulate adaptive and innate immune responses. These interactions ensure distinct yet overlapping signaling responses necessary for cellular homeostasis. |
| **Associated diseases and disorders** | P38 plays a role in conditions such as rheumatoid arthritis and cancer. In rheumatoid arthritis p38 contributes to inflammatory processes promoting the production of pro-inflammatory cytokines. In cancer its role varies; while |

sometimes promoting cancer cell apoptosis it may also aid in tumor survival and proliferation. The protein TNF-alpha often connects indirectly with p38 through inflammatory pathways highlighting its involvement in these diseases.

## Product promise

**Tested**

We have tested this species and application combination and it works. It is covered by our product promise.

**Expected**

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

**Predicted**

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

**Not recommended**

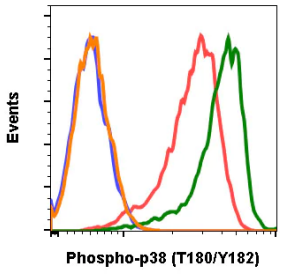
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

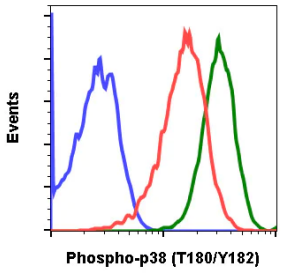
## 4 product images




### Flow Cytometry - Anti-p38 (phospho T180 + Y182) antibody [P38T180Y182-E3] (ab278674)

P38 (phospho T180 + Y182) Flow Cytometry staining using rabbit Anti-p38 (phospho T180 + Y182) antibody

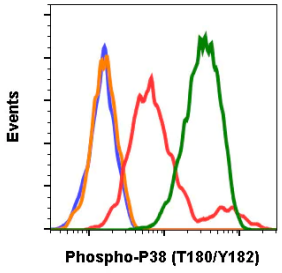
Flow cytometric analysis of A431 cells secondary antibody only (blue) or untreated with 0.01 µg/mL of isotype control (orange) or untreated (red) or staurosporine-treated (green) using 0.01 µg/mL of ab278674.




## Flow Cytometry - Anti-p38 (phospho T180 + Y182) antibody [P38T180Y182-E3] (ab278674)

P38 (phospho T180 + Y182) Flow Cytometry staining using rabbit Anti-p38 (phospho T180 + Y182) antibody

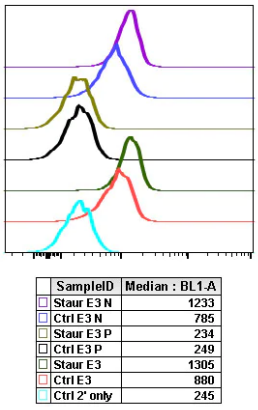
Flow cytometric analysis of C6 cells secondary antibody only negative control (blue) or untreated (red) or treated with staurosporine (green) using ab278674 at 0.01 µg/mL.




## Flow Cytometry - Anti-p38 (phospho T180 + Y182) antibody [P38T180Y182-E3] (ab278674)

P38 (phospho T180 + Y182) Flow Cytometry staining using rabbit Anti-p38 (phospho T180 + Y182) antibody

Flow cytometric analysis of C2C12 cells secondary antibody only negative control (blue) or 0.1 µg/mL of isotype control (orange) or untreated (red) or treated with staurosporine (green) using ab278674 at 0.1 µg/mL.



| SampleID | Median : BL1-A |
|---|---|
| Staur E3 N | 1233 |
| Ctrl E3 N | 785 |
| Staur E3 P | 234 |
| Ctrl E3 P | 249 |
| Staur E3 | 1305 |
| Ctrl E3 | 880 |
| Ctrl 2° only | 245 |

## Flow Cytometry - Anti-p38 (phospho T180 + Y182) antibody [P38T180Y182-E3] (ab278674)

P38 (phospho T180 + Y182) Flow Cytometry staining using rabbit Anti-p38 (phospho T180 + Y182) antibody

Peptide blocking flow cytometric analysis of C6 cells secondary antibody only negative control (light blue) or untreated (red) or treated with staurosporine (green) or untreated and blocked with phospho-peptide (black) or treated and blocked with phospho peptide (gold) or untreated and blocked with non-phospho peptide (dark blue) or treated and blocked with non-phospho peptide (purple) using ab278674 at 5ng/mL.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.