abcam

ab278550

Anti-MSK1 (phospho T581) antibody [MSK1T581-A5]

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 RPS6KA5 pT581. The exact immunogen used to generate this antibody is proprietary information. Database link O75582
Clone number	MSK1T581-A5
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 Batch concentration finder →

Reactivity data

Flow Cyt

Tested

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	-

WB

Tested

Species	Human
Dilution info	0.1 µg/mL
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information RPS6KA5 pT581

Function

Serine/threonine-protein kinase that is required for the mitogen or stress-induced phosphorylation of the transcription factors CREB1 and ATF1 and for the regulation of the transcription factors RELA, STAT3 and ETV1/ER81, and that contributes to gene activation by histone phosphorylation and functions in the regulation of inflammatory genes (PubMed:11909979, PubMed:12569367, PubMed:12763138, PubMed:18511904, PubMed:9687510, PubMed:9873047). Phosphorylates CREB1 and ATF1 in response to mitogenic or stress stimuli such as UV-C irradiation, epidermal growth factor (EGF) and anisomycin (PubMed:11909979, PubMed:9873047). Plays an essential role in the control of RELA transcriptional activity in response to TNF and upon glucocorticoid, associates in the cytoplasm with the glucocorticoid receptor NR3C1 and contributes to RELA inhibition and repression of inflammatory gene expression (PubMed:12628924, PubMed:18511904). In skeletal myoblasts is required for

phosphorylation of RELA at 'Ser-276' during oxidative stress (PubMed:12628924). In erythropoietin-stimulated cells, is necessary for the 'Ser-727' phosphorylation of STAT3 and regulation of its transcriptional potential (PubMed:12763138). Phosphorylates ETV1/ER81 at 'Ser-191' and 'Ser-216', and thereby regulates its ability to stimulate transcription, which may be important during development and breast tumor formation (PubMed:12569367). Directly represses transcription via phosphorylation of 'Ser-1' of histone H2A (PubMed:15010469). Phosphorylates 'Ser-10' of histone H3 in response to mitogenics, stress stimuli and EGF, which results in the transcriptional activation of several immediate early genes, including proto-oncogenes c-fos/FOS and c-jun/JUN (PubMed:12773393). May also phosphorylate 'Ser-28' of histone H3 (PubMed:12773393). Mediates the mitogen- and stress-induced phosphorylation of high mobility group protein 1 (HMGN1/HMG14) (PubMed:12773393). In lipopolysaccharide-stimulated primary macrophages, acts downstream of the Toll-like receptor TLR4 to limit the production of pro-inflammatory cytokines (By similarity). Functions probably by inducing transcription of the MAP kinase phosphatase DUSP1 and the anti-inflammatory cytokine interleukin 10 (IL10), via CREB1 and ATF1 transcription factors (By similarity). Plays a role in neuronal cell death by mediating the downstream effects of excitotoxic injury (By similarity). Phosphorylates TRIM7 at 'Ser-107' in response to growth factor signaling via the MEK/ERK pathway, thereby stimulating its ubiquitin ligase activity (PubMed:25851810).

Storage

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	The mitogen- and stress-activated protein kinase 1 known as MSK1 or RPS6KA5 acts as a serine/threonine kinase. It has a mass of approximately 92 kDa. MSK1 phosphorylates various substrates including proteins involved in gene expression regulation. Researchers find MSK1 expressed mainly in the brain but it appears also in kidneys and lungs. Phosphorylation by MSK1 influences transcription factors like CREB and ATF1 affecting cellular responses to stimuli.
Biological function summary	MSK1 influences cell proliferation and survival. It operates as part of the MAPK signaling pathway driven by extracellular signals. MSK1 activation occurs through ERK1/2 and p38 MAPK therefore linking it to essential cellular processes. As a kinase MSK1 phosphorylates downstream targets contributing to inflammatory responses apoptosis and gene expression modulation. MSK1 often partners with other proteins to form complexes enhancing its regulatory capabilities.
Pathways	MSK1 plays a role in both the MAPK and NF-kB pathways. These pathways contribute to controlling cell growth and immune responses. In the MAPK pathway the involvement of MSK1 influences further regulation of transcription factors. In connection with the NF-kB pathway MSK1 can regulate NF-kB activity promoting gene expression related to inflammation. Related proteins in these pathways include ERK1/2 which activate MSK1 enhancing the kinase's function in these critical cellular circuits.
Associated diseases and disorders	MSK1 links to various conditions including cancer and neurodegenerative diseases. The dysregulation of MSK1 activity is associated with processes like uncontrolled cell proliferation and abnormal inflammation factors that contribute to tumor development and progression. In neurodegenerative diseases changes in MSK1 activity disrupt neuronal survival pathways affecting cognitive functions. MSK1 connects with proteins like CREB influencing the expression of genes relevant to these diseases' development.

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.

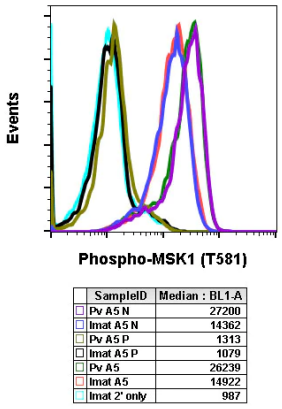
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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

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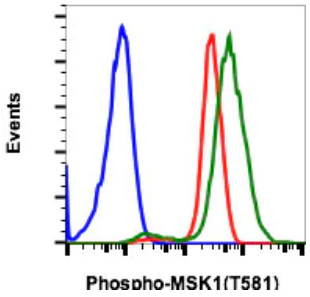
6 product images



Flow Cytometry - Anti-MSK1 (phospho T581) antibody [MSK1T581-A5] (ab278550)

MSK1 (phospho T581) Flow Cytometry staining using rabbit Anti-MSK1 (phospho T581) antibody

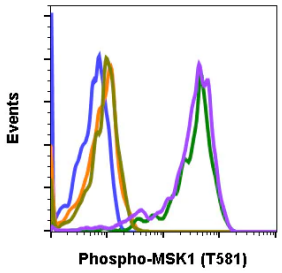
Peptide blocking flow cytometric analysis of K562 cells secondary antibody only negative control (light blue) or imatinib-treated (red) or pervanadate-treated (green) or imatinib and blocked with phospho-peptide (black) or pervanadate and blocked with phospho peptide (gold) or imatinib and blocked with non-phospho peptide (dark blue) or pervanadate and blocked with non-phospho peptide (purple) ab278550 at 0.1µg/mL. .



Flow Cytometry - Anti-MSK1 (phospho T581) antibody [MSK1T581-A5] (ab278550)

MSK1 (phospho T581) Flow Cytometry staining using rabbit Anti-MSK1 (phospho T581) antibody

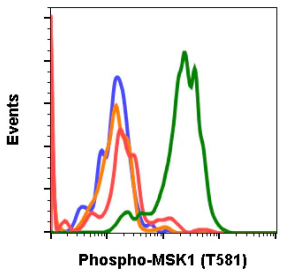
Flow cytometric analysis of U937 cells secondary antibody only negative control (blue) or untreated (red) or treated with CalA (green) using ab278550 at 1.0 µg/mL.



Flow Cytometry - Anti-MSK1 (phospho T581) antibody [MSK1T581-A5] (ab278550)

MSK1 (phospho T581) Flow Cytometry staining using rabbit Anti-MSK1 (phospho T581) antibody

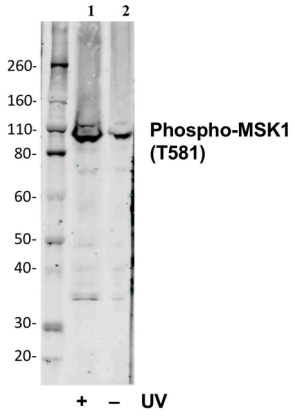
Peptide blocking flow cytometric analysis of C6 cells secondary antibody only negative control (light blue) or pervanadate-treated and stained using 0.1µg/mL isotype control (orange) or pervanadate-treated and stained using 0.1µg/mL ab278550 (green) or pervanadate and blocked with phospho peptide (gold) or pervanadate and blocked with non-phospho peptide (purple).



Flow Cytometry - Anti-MSK1 (phospho T581) antibody [MSK1T581-A5] (ab278550)

MSK1 (phospho T581) Flow Cytometry staining using rabbit Anti-MSK1 (phospho T581) antibody

Flow cytometric analysis of C2C12 cells secondary antibody only negative control (blue) or 0.1 µg/mL of isotype control (orange) or treated with imatinib (red) or with pervanadate (green) using ab278550 at 0.1 µg/mL.

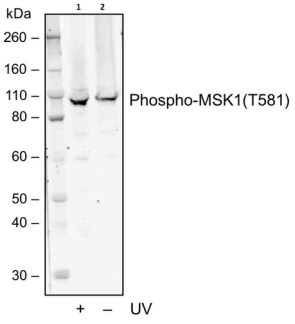


Western blot - Anti-MSK1 (phospho T581) antibody [MSK1T581-A5] (ab278550)

MSK1 (phospho T581) Western blot staining using rabbit Anti-MSK1 (phospho T581) antibody

Western blot analysis of 293T cell extract untreated or treated with staurosporine using 0.1 µg/mL ab278550.
All lanes:
Western blot - Anti-MSK1 (phospho T581) antibody [MSK1T581-A5] (ab278550)

Predicted band size: 90 kDa



Western blot - Anti-MSK1 (phospho T581) antibody [MSK1T581-A5] (ab278550)

All lanes:
Western blot - Anti-MSK1 (phospho T581) antibody [MSK1T581-A5] (ab278550) at 0.1 µg/mL

Lane 1:
Human epithelial cell line from embryonic kidney transformed with large T antigen (293T cells) cell extract (treated with UV)

Lane 2:
Human epithelial cell line from embryonic kidney transformed with large T antigen (293T cells) cell extract (untreated)

Predicted band size: 90 kDa

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