abcam

ab214445

Anti-MEK1 (phospho S298) antibody [EPR3338] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR3338
Purification technique	Affinity purification Protein A
Specificity	ab96379 detects MEK1 phosphorylated at threonine 298.
Concentration	0.975 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human

Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

Target data

See full target information MAP2K1 pS298

Function	Dual specificity protein kinase which acts as an essential component of the MAP kinase signal transduction pathway. Binding of extracellular ligands such as growth factors, cytokines and hormones to their cell-surface receptors activates RAS and this initiates RAF1 activation. RAF1 then further activates the dual-specificity protein kinases MAP2K1/MEK1 and MAP2K2/MEK2. Both MAP2K1/MEK1 and MAP2K2/MEK2 function specifically in the MAPK/ERK cascade, and catalyze the concomitant phosphorylation of a threonine and a tyrosine residue in a Thr-Glu-Tyr sequence located in the extracellular signal-regulated kinases MAPK3/ERK1 and MAPK1/ERK2, leading to their activation and further transduction of the signal within the MAPK/ERK cascade. Activates BRAF in a KSR1 or KSR2-dependent manner; by binding to KSR1 or KSR2 releases the inhibitory intramolecular interaction between KSR1 or KSR2 protein kinase and N-terminal domains which

promotes KSR1 or KSR2-BRAF dimerization and BRAF activation (PubMed:29433126). Depending on the cellular context, this pathway mediates diverse biological functions such as cell growth, adhesion, survival and differentiation, predominantly through the regulation of transcription, metabolism and cytoskeletal rearrangements. One target of the MAPK/ERK cascade is peroxisome proliferator-activated receptor gamma (PPARG), a nuclear receptor that promotes differentiation and apoptosis. MAP2K1/MEK1 has been shown to export PPARG from the nucleus. The MAPK/ERK cascade is also involved in the regulation of endosomal dynamics, including lysosome processing and endosome cycling through the perinuclear recycling compartment (PNRC), as well as in the fragmentation of the Golgi apparatus during mitosis.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab214445 is the carrier-free version of ab96379.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

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.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	MEK1 also known as MAP2K1 is a dual-specificity kinase that plays a role in the MAPK/ERK pathway. It has a molecular weight of around 45 kDa. MEK1 phosphorylates and activates the extracellular signal-regulated kinases ERK1 and ERK2. MEK1 is expressed in various tissues but is especially abundant in brain and heart tissues. Researchers commonly measure MEK1 levels using techniques like MEK1 ELISA while phospho-MEK antibodies help analyze its activity state.
Biological function summary	MEK1 impacts cell processes such as proliferation differentiation and survival. It does not work alone but forms a complex with other proteins to exert its function. MEK1 activity is tightly controlled by upstream activators and downstream targets. One of the key phosphorylation sites on MEK1 is at serine 298 often marked as MEK1 pS298. This phosphorylation indicates MEK1's activated state which is critical for its biological function.
Pathways	MEK1 integrates signals within the MAPK/ERK pathway and interacts closely with RAF kinases upstream and ERK kinases downstream. This pathway modulates cellular responses to growth factors. MEK1 undergoes phosphorylation enhancing its activity and subsequently phosphorylates ERK proteins. Many studies isolate MEK1 activity using specific inhibitors such as the MEK1 inhibitor to dissect pathway dynamics. ERK inhibitor PD98059 also helps when studying parallel interactions with MEK1.
Associated diseases and disorders	MEK1 mutations or dysregulation have links to several types of cancer including melanoma. These often involve changes that lead to continuous MEK1 activation contributing to uncontrolled cell growth. MEK1 involvement in the RASopathies also shows its connection to disorders characterized by heart and facial abnormalities. In cancer MEK1 works closely with the BRAF protein which often harbors mutations leading to disease progression showcasing MEK1 as a target for therapeutic intervention.

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.

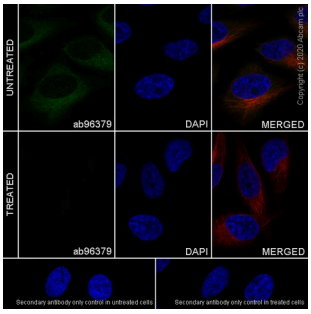
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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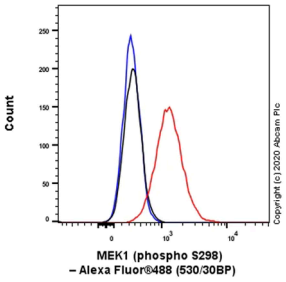
6 product images



Immunocytochemistry/ Immunofluorescence - Anti-MEK1 (phospho S298) antibody [EPR3338] - BSA and Azide free (ab214445)

MEK1 (phospho S298) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MEK1 (phospho S298) antibody

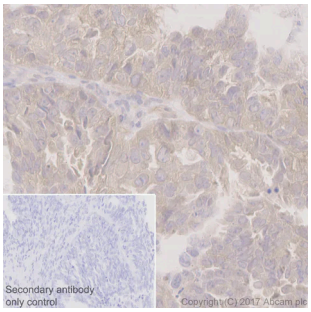
This data was developed using ab96379, the same antibody clone in a different buffer formulation. Immunocytochemistry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) treated with lambda phosphatase cells labeling MEK1 with Purified ab96379 at 1/100 dilution (9.53 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 dilution (2.5 µg/mL). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 dilution (2 µg/mL). DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Flow Cytometry (Intracellular) - Anti-MEK1 (phospho S298) antibody [EPR3338] - BSA and Azide free (ab214445)

MEK1 (phospho S298) Flow Cytometry (Intracellular) staining using rabbit Anti-MEK1 (phospho S298) antibody

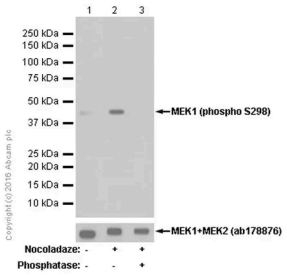
This data was developed using ab96379, the same antibody clone in a different buffer formulation. Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling MEK1 with Purified ab96379 at 1/100 dilution (10 µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MEK1 (phospho S298) antibody [EPR3338] - BSA and Azide free (ab214445)

MEK1 (phospho S298) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MEK1 (phospho S298) antibody

This data was developed using ab96379, the same antibody clone in a different buffer formulation. Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human ovarian carcinoma tissue sections labeling MEK1 with Purified ab96379 at 1/50 dilution (19.06 µg/mL). Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0). ImmunoHistoProbe one step HRP Polymer (ready to use) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Western blot - Anti-MEK1 (phospho S298) antibody [EPR3338] - BSA and Azide free (ab214445)

MEK1 (phospho S298) Western blot staining using rabbit Anti-MEK1 (phospho S298) antibody

All lanes:
Western blot - Anti-MEK1 (phospho S298) antibody [EPR3338] (ab96379) at 1/1000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 15 µg

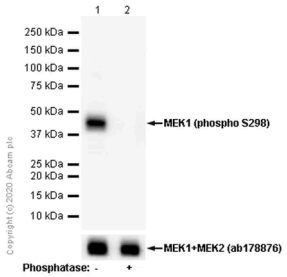
Lane 2:
HeLa (Human cervix adenocarcinoma epithelial cell) treated with 100 ng/ml nocoladaze for 18 hours whole cell lysate at 15 µg

Lane 3:
HeLa (Human cervix adenocarcinoma epithelial cell) treated with 100ng/ml nocoladaze for 18 hours, then the membrane treated with phosphatase for 1 hour at 15 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 43 kDa



Western blot - Anti-MEK1 (phospho S298) antibody [EPR3338] - BSA and Azide free (ab214445)

All lanes:
Western blot - Anti-MEK1 (phospho S298) antibody [EPR3338] (ab96379) at 1/1000 dilution

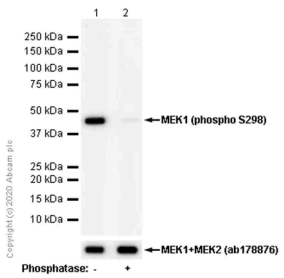
Lane 1:
Rat skeletal muscle lysate

Lane 2:
Rat skeletal muscle lysate, the membrane treated with phosphatase for 1 hour

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 43 kDa



Western blot - Anti-MEK1 (phospho S298) antibody [EPR3338] - BSA and Azide free (ab214445)

All lanes:
Western blot - Anti-MEK1 (phospho S298) antibody [EPR3338] (ab96379) at 1/1000 dilution

Lane 1:
Mouse skeletal muscle lysate

Lane 2:
Mouse skeletal muscle lysate, the membrane treated with phosphatase for 1 hour

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 43 kDa

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