abcam

ab178876

Anti-MEK1 + MEK2 antibody [EPR16667]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR16667
Purification technique	Affinity purification Protein A
Concentration	1.986 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/120
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/20000
Notes	-

Species	Rat
Dilution info	1/20000
Notes	-

Species	Human
Dilution info	1/20000
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	Purified format.

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information MAP2K1

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	Conditional Ambient
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

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.

Supplementary info

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

Activity summary	MEK1 and MEK2 also known as MAP2K1 and MAP2K2 respectively are dual-specificity kinases that play roles in signaling pathways mediating cellular responses. MEK1 and MEK2 have molecular weights of approximately 45kDa. They are expressed in various tissues including the heart brain and skeletal muscles reflecting their widespread function within the organism. These proteins are often referred collectively as the MEK1/2 complex due to their shared and overlapping roles in cell signaling.
Biological function summary	MEK1 and MEK2 are integral parts of the mitogen-activated protein kinase (MAPK) signaling cascade. MEK1/2 phosphorylate and activate the ERK1/2 kinases which transmit signals from the cell surface to the nucleus regulating gene expression and cell fate decisions. The MEK1/2 proteins also act in concert with other kinases and substrates forming signaling complexes that ensure specific and regulated cellular outcomes.
Pathways	MEK1 and MEK2 play key roles within the MAPK/ERK pathway a critical signaling mechanism for cell division and survival. They also link to the RAS/MAPK pathway involved in transmitting signals from membrane receptors to the nucleus. In these pathways MEK1/2 interact with proteins like RAF kinases and ERK1/2 propagating signals that influence cellular growth and differentiation.
Associated diseases and disorders	MEK1 and MEK2 are implicated in cancer and neurological disorders. Abnormal activity of the MEK1/2 proteins often due to mutations can lead to uncontrolled cell proliferation contributing to the development of cancers such as melanoma. In neurological disorders dysregulation of MEK1/2 signaling relates to conditions like neuro-cardio-facial-cutaneous syndromes. These proteins interact with other key players in these diseases such as mutant RAF proteins in melanoma highlighting their critical roles in disease mechanisms.

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.

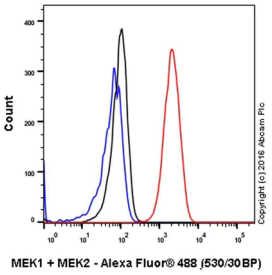
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

---

11 product images

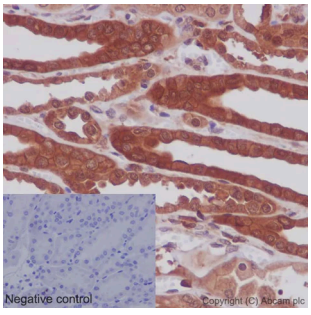


Flow Cytometry (Intracellular) - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 Flow Cytometry (Intracellular) staining using rabbit Anti-MEK1 + MEK2 antibody

ab178876 staining MEK1 + MEK2 in the human cell line HeLa (human cervix adenocarcinoma) by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde, permabilised with 90% methanol and the sample was incubated with the primary antibody at a dilution of 1/100. A goat anti rabbit IgG (Alexa Fluor® 488) at a dilution of 1/2000 was used as the secondary antibody. Isoytype control: Rabbit monoclonal IgG (Black)

Unlabelled control: Cell without incubation with primary antibody and secondary antibody (Blue)



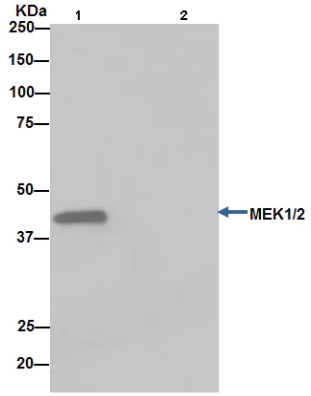
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MEK1 + MEK2 antibody

Immunohistochemical analysis of paraffin-embedded Human renal medulla tissue labeling MEK1 + MEK2 with ab178876 at 1/500 dilution, followed by prediluted HRP Polymer for Rabbit/Mouse IgG. Renal tubule epithelial cells show strong cytoplasmic staining with some additional nuclear staining. Counter stained with Hematoxylin.

Negative control: Using PBS instead of primary ab, secondary ab is prediluted HRP Polymer for Rabbit/Mouse IgG.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



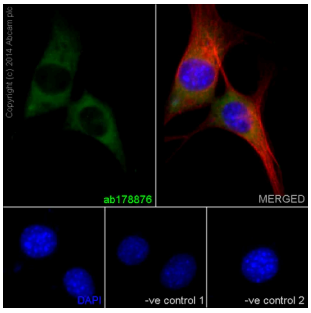
Immunoprecipitation - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 was immunoprecipitated from 1mg of HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell extract with ab178876 at 1/120 dilution. Western blot was performed from the immunoprecipitate using ab178876 at 1/1000 dilution. Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG, was used as secondary antibody at 1/1500 dilution. Lane 1: HeLa whole cell extract. Lane 2: PBS instead of HeLa whole cell extract.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

All lanes:
Immunoprecipitation - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

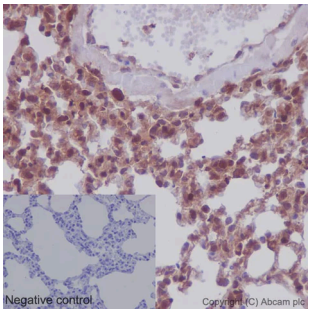
Predicted band size: 43 kDa



Immunocytochemistry/ Immunofluorescence - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MEK1 + MEK2 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized NIH/3T3 (Mouse embyro fibroblast cells) cells labeling MEK1 + MEK2 with ab178876 at 1/100 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/200 dilution (green). Cytoplasmic staining on NIH/3T3 cell line is observed. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/500 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution (red).
The negative controls are as follows;
1. ab178876 at 1/100 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution.
2. ab7291 (anti-Tubulin mouse mAb) at 1/500 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/200 dilution.



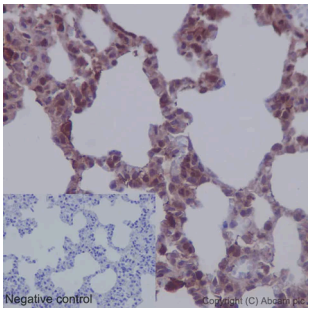
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MEK1 + MEK2 antibody

Immunohistochemical analysis of paraffin-embedded Mouse lung tissue labeling MEK1 + MEK2 with ab178876 at 1/500 dilution, followed by prediluted HRP Polymer for Rabbit/Mouse IgG. Alveolar epithelial cells show strong cytoplasmic staining with some additional nuclear staining. Counter stained with Hematoxylin.

Negative control: Using PBS instead of primary ab, secondary ab is prediluted HRP Polymer for Rabbit/Mouse IgG.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



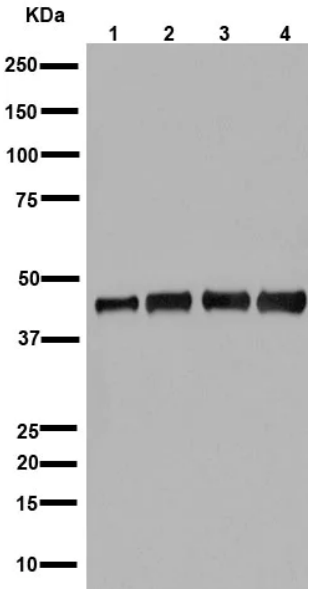
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MEK1 + MEK2 antibody

Immunohistochemical analysis of paraffin-embedded Rat lung tissue labeling MEK1 + MEK2 with ab178876 at 1/500 dilution, followed by prediluted HRP Polymer for Rabbit/Mouse IgG. Alveolar epithelial cells show strong cytoplasmic staining with some additional nuclear staining. Counter stained with Hematoxylin.

Negative control: Using PBS instead of primary ab, secondary ab is prediluted HRP Polymer for Rabbit/Mouse IgG.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Western blot - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 Western blot staining using rabbit Anti-MEK1 + MEK2 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876) at 1/20000 dilution

Lane 1:
HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysates at 20 µg

Lane 2:
293T (Human epithelial cells from embryonic kidney) whole cell lysates at 20 µg

Lane 3:
A549 (Human lung carcinoma) whole cell lysates at 20 µg

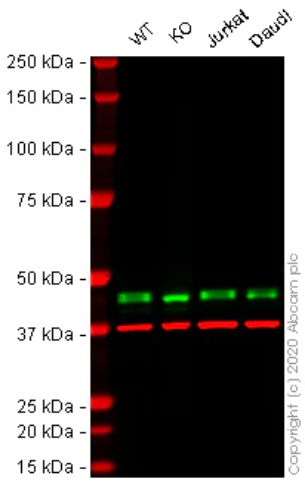
Lane 4:
A431 (Human epidermoid carcinoma) whole cell lysates at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/1000 dilution

Predicted band size: 43 kDa

Observed band size: 44 kDa



Western blot - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 Western blot staining using rabbit Anti-MEK1 + MEK2 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab178876 observed at 45 kDa. Red - loading control ab8245 (Mouse anti-GAPDH antibody [6C5]) observed at 37kDa.
ab178876 was shown to react with MEK2 in wild-type HEK-293T cells in western blot with loss of signal observed in MAP2K2 knockout sample. Wild-type HEK-293T and MAP2K2 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3% milk in TBS-T (0.1% Tween®) before incubation with ab178876 and ab8245 (Mouse anti-GAPDH antibody [6C5]) overnight at 4°C at a 1 in 20000 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876) at 1/20000 dilution

Lane 1:
Wild-type HEK-293T cell lysate at 20 µg

Lane 2:
MAP2K2 knockout HEK293T cell lysate at 20 µg

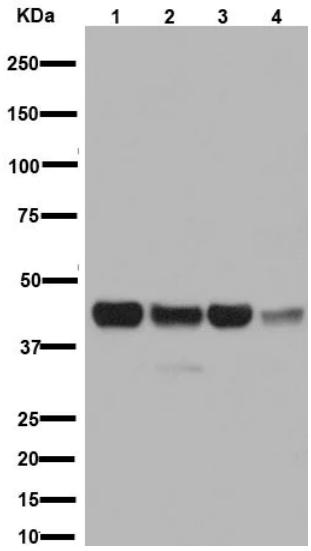
Lane 3:
Jurkat cell lysate at 20 µg

Lane 4:
Daudi cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 43 kDa

Observed band size: 45 kDa



Western blot - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 Western blot staining using rabbit Anti-MEK1 + MEK2 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876) at 1/50000 dilution

Lane 1:
Human fetal brain lysate at 10 µg

Lane 2:
Human fetal heart lysate at 10 µg

Lane 3:
Human fetal kidney lysate at 10 µg

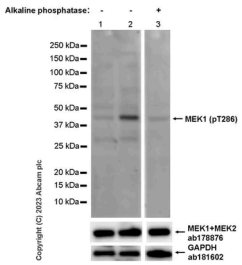
Lane 4:
Human fetal spleen lysate at 10 µg

Secondary

All lanes:
Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1000 dilution

Predicted band size: 43 kDa

Observed band size: 44 kDa



Western blot - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
Lysates were freshly made and used for Western blotting immediately to minimize protein degradation.

This blot was developed using a high sensitivity ECL substrate. The high-sensitivity ECL substrate used allows for the detection of proteins in the mid-femtogram range.

In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution.

In Western blot, anti-MEK1+MEK2 antibody (ab178876) loading control staining at 1/1000 dilution.

All lanes:
Western blot - Anti-MEK1 (phospho T286) antibody [EPR27226-8] (ab307509) at 1/1000 dilution

Lane 1:
Untreated NIH/3T3 (mouse embryonic fibroblast) whole cell lysate (untreated membrane) at 20 µg

Lane 2:
NIH/3T3 treated with 100ng/ml nocodazole for 24h whole cell lysate (untreated membrane) at 20 µg

Lane 3:
NIH/3T3 treated with 100ng/ml nocodazole for 24h whole cell lysate (phosphatase treated membrane) at 20 µg

Secondary

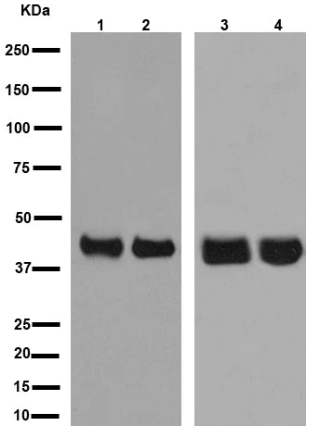
All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Developed using the ECL technique.

Predicted band size: 43 kDa

Observed band size: 43 kDa

Exposure time: 82s



Western blot - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876)

MEK1 + MEK2 Western blot staining using rabbit Anti-MEK1 + MEK2 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-MEK1 + MEK2 antibody [EPR16667] (ab178876) at 1/50000 dilution

Lane 1:
Mouse brain lysate at 10 µg

Lane 2:
Rat brain lysate at 10 µg

Lane 3:

Mouse heart lysate at 10 µg

Lane 4:
Rat heart lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/1000 dilution

Predicted band size: 43 kDa

Observed band size: 44 kDa

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