abcam

ab233731

Anti-MEK2 antibody [Y78] - BSA and Azide free

Recombinant | RabMAb | KO Validated

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	Y78
Purification technique	Affinity purification Protein A
Specificity	This antibody does not cross react with other MAP kinase kinase family members.
Concentration	1.037 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

WB

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Target data

See full target information MAP2K2

Function	Catalyzes the concomitant phosphorylation of a threonine and a tyrosine residue in a Thr-Glu-Tyr sequence located in MAP kinases. Activates the ERK1 and ERK2 MAP kinases (By similarity). 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).

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

ab233731 is the carrier-free version of ab32517.

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.

Species reactivity
Rat: We have preliminary internal testing data to indicate this antibody may not react with this species. Please contact us for more information.

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	MEK2 or MAP2K2 is a protein kinase with a mass of approximately 44 kDa. This kinase part of the Mitogen-Activated Protein Kinase (MAPK) pathway primarily functions mechanically as a dual-specificity protein kinase. It phosphorylates both serine/threonine and tyrosine residues on its substrate proteins. MEK2 is largely expressed in various tissues including the brain and heart. It serves an important role in relaying extracellular signals within cells leading to diverse cellular responses.
Biological function summary	MEK2 participates in signal transduction pathways mediating cell division differentiation and apoptosis. As a part of the MAPK signaling cascade it operates downstream of RAS and RAF proteins. MEK2 forms a complex with MEK1 another closely related kinase to ensure proper signal relay. This complex plays a significant role in the regulation of cellular responses to growth signals and stress.
Pathways	MEK2 is intricately connected to the ERK1/2 pathway one of the key pathways it is involved in. ERK1/2 (Extracellular signal-Regulated Kinases) further transmits signals to the cell's nuclear components regulating gene expression critically. MEK2 directly phosphorylates and activates ERK1 and ERK2 facilitating their role in transcription cell cycle regulation and maintenance of cell integrity. The interaction of MEK2 with proteins like BRAF and CRAF along the MAPK pathway amplifies the signal transduction for various growth factors and hormones.
Associated diseases and disorders	MEK2 has a notable association with cancer particularly melanoma and colorectal cancer. It often becomes aberrantly activated leading to unregulated cell proliferation. The connection of MEK2 to ERK1/2 proteins in these malignancies makes it a potential therapeutic target. Furthermore MEK2 mutations can contribute to Noonan syndrome a disorder that affects multiple body systems marking its relationship with genetic abnormalities and developmental issues. Researchers have been investigating MEK inhibitors to target these disorders highlighting the importance of understanding MEK2's role in disease contexts.

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

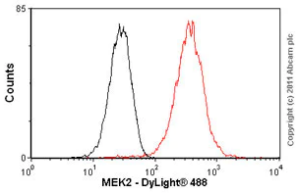
We do not recommend this combination. It is not covered by our product promise.

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.

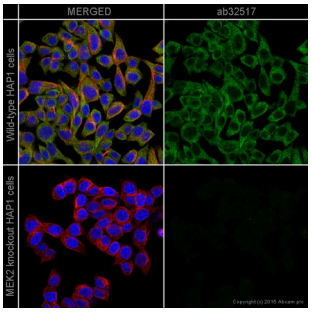
9 product images



Flow Cytometry (Intracellular) - Anti-MEK2 antibody [Y78] - BSA and Azide free (ab233731)

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

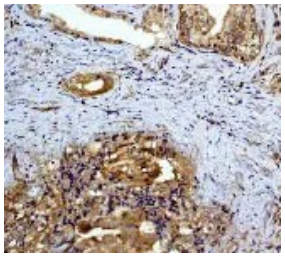
This data was developed using ab32517, the same antibody clone in a different buffer formulation. Overlay histogram showing HeLa cells stained with ab32517 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab32517, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Immunocytochemistry/ Immunofluorescence - Anti-MEK2 antibody [Y78] - BSA and Azide free (ab233731)

MEK2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MEK2 antibody

This data was developed using ab32517, the same antibody clone in a different buffer formulation. ab32517 staining MEK2 in wild-type HAP1 cells (top panel) and MEK2 knockout HAP1 cells (bottom panel). The cells were fixed with 4% formaldehyde (10min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab32517 at 1µg/ml and ab195889 at 1/250 dilution (shown in pseudo colour red) overnight at +4°C, followed by a further incubation at room temperature for 1h with a goat secondary antibody to Rabbit IgG (Alexa Fluor® 488) (ab150081) at 2 µg/ml (shown in green). Nuclear DNA was labelled in blue with DAPI.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MEK2 antibody [Y78] - BSA and Azide free (ab233731)

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

This data was developed using ab32517, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin embedded human prostate carcinoma using ab32517 at a dilution of 1/250.

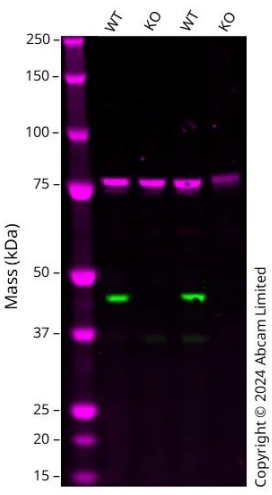
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-MEK2 antibody [Y78] - BSA and Azide free (ab233731)

MEK2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MEK2 antibody

This data was developed using ab32517, the same antibody clone in a different buffer formulation.Immunofluorescent staining of HeLa cells using ab32517 at a dilution of 1/250.



Western blot - Anti-MEK2 antibody [Y78] - BSA and Azide free (ab233731)

MEK2 Western blot staining using rabbit Anti-MEK2 antibody

This data was developed using ab32517, the same antibody clone in a different buffer formulation.

Western blot: Anti-MAP2K2 antibody [Y78] (ab32517) staining at 1/10000 dilution, shown in green; Mouse anti-CANX [CANX/1543] (ab238078) loading control staining at 1/20000 dilution, shown in magenta. In Western blot, ab32517 was shown to bind specifically to MAP2K2. A band was observed at 44 kDa in wild-type HCT 116 cell lysates with no signal observed at this size in MAP2K2 knockout cell line. To generate this image, wild-type and MAP2K2 knockout HCT 116 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.

All lanes:
Western blot - Anti-MEK2 antibody [Y78] (ab32517) at 1/10000 dilution

Lane 1:
Wild-type HCT 116 cell lysate at 20 µg

Lane 2:
MAP2K2 knockout HCT 116 cell lysate at 20 µg

Lane 3:
Wild-type HEK-293T ab255553 cell lysate at 20 µg

Lane 4:
MAP2K2 knockout HEK-293T ab261003 cell lysate at 20 µg

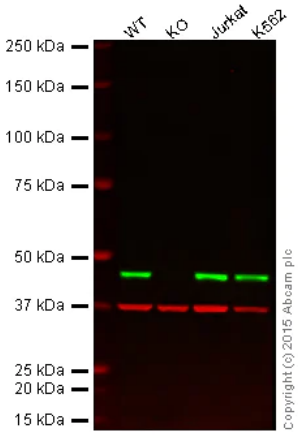
Secondary

Lanes 1 - 4:
Goat anti-Rabbit IgG H&L 800CW at 1/20000 dilution

Lanes 1 - 4:
Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 44 kDa



Western blot - Anti-MEK2 antibody [Y78] - BSA and Azide free (ab233731)

MEK2 Western blot staining using rabbit Anti-MEK2 antibody

This data was developed using ab32517, the same antibody clone in a different buffer formulation.
Lane 1 Wild-type HAP1 cell lysate (20 µg)

Lane 2 MEK2 knockout HAP1 cell lysate (20 µg)

Lane 3 Jurkat cell lysate (20 µg)

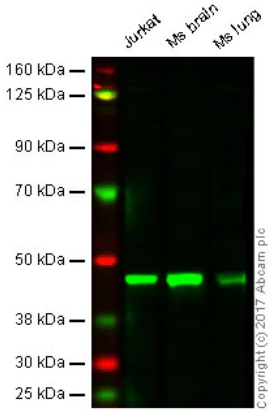
Lane 4 K562 cell lysate (20 µg)

Lanes 1 - 4 Merged signal (red and green). Green - ab32517 observed at 44 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab32517 was shown to specifically react with MEK2 when MEK2 knockout samples were used. Wild-type and MEK2 knockout samples were subjected to SDS-PAGE. ab32517 and ab8245 (loading control to GAPDH) were diluted 1/10 000 and 1/2000 and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1/10 000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-MEK2 antibody [Y78] (ab32517)

Predicted band size: 44 kDa



Western blot - Anti-MEK2 antibody [Y78] - BSA and Azide free (ab233731)

MEK2 Western blot staining using rabbit Anti-MEK2 antibody

This data was developed using ab32517, the same antibody clone in a different buffer formulation. This blot was produced using a 4-12% Bis-tris gel under the MOPS buffer system. The gel was run at 200V for 50 minutes before being transferred onto a Nitrocellulose membrane at 30V for 70 minutes. The membrane was then blocked for an hour using Licor blocking buffer before being incubated with ab32517 overnight at 4°C. Antibody binding was detected using Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) at a 1:10000 dilution for 1hr at room temperature and then imaged.

All lanes:
Western blot - Anti-MEK2 antibody [Y78] (ab32517) at 1/10000 dilution

Lane 1:
Jurkat Whole Cell Lysate at 20 µg

Lane 2:
Mouse Brain Tissue Lysate at 20 µg

Lane 3:
Mouse Lung Tissue Lysate at 20 µg

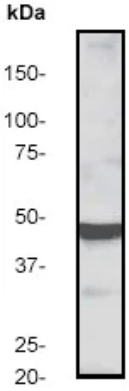
Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/10000 dilution

Performed under reducing conditions.

Predicted band size: 44 kDa

Observed band size: 44 kDa



Western blot - Anti-MEK2 antibody [Y78] - BSA and Azide free (ab233731)

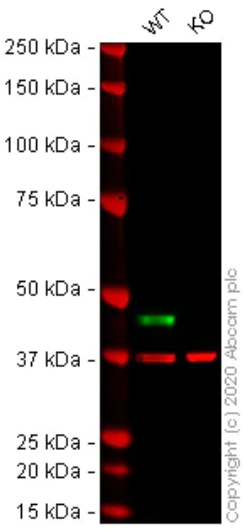
MEK2 Western blot staining of Jurkat cell lysate using rabbit Anti-MEK2 antibody

This data was developed using ab32517, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-MEK2 antibody [Y78] (ab32517) at 1/10000 dilution

All lanes:
Jurkat cell lysate

Predicted band size: 44 kDa

Observed band size: 45 kDa



Western blot - Anti-MEK2 antibody [Y78] - BSA and Azide free (ab233731)

MEK2 Western blot staining using rabbit Anti-MEK2 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab32517).
Lanes 1 - 2: Merged signal (red and green). Green - ab32517 observed at 45 kDa. Red - loading control ab8245 (Mouse anti-GAPDH antibody [6C5]) observed at 37kDa.

ab32517 was shown to react with MEK2 in wild-type HEK-293T cells in western blot with loss of signal observed in MAP2K2 knockout cell line ab266315 (MAP2K2 knockout cell lysate ab257512). 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 ab32517 and ab8245 (Mouse anti-GAPDH antibody [6C5]) overnight at 4°C at a 1 in 10000 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-MEK2 antibody [Y78] (ab32517) at 1/10000 dilution

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

Lane 2:
MAP2K2 knockout HEK293T cell lysate at 20 µg

Lane 2:
Western blot - Human MAP2K2 (MEK2) knockout HEK-293T cell line (ab266315)

Performed under reducing conditions.

Predicted band size: 44 kDa

Observed band size: 45 kDa

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