abcam

ab232538

Anti-ERK5 antibody [EP791Y] - 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	EP791Y
Purification technique	Affinity purification Protein A
Concentration	0.999 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information MAPK7

Function	Plays a role in various cellular processes such as proliferation, differentiation and cell survival. The upstream activator of MAPK7 is the MAPK kinase MAP2K5. Upon activation, it translocates to the nucleus and phosphorylates various downstream targets including MEF2C. EGF activates MAPK7 through a Ras-independent and MAP2K5-dependent pathway. As part of the MAPK/ERK signaling pathway, acts as a negative regulator of apoptosis in cardiomyocytes via interaction with STUB1/CHIP and promotion of STUB1-mediated ubiquitination and degradation of ICER-type isoforms of CREM (By similarity). May have a role in muscle cell differentiation. May be important for endothelial function and maintenance of blood vessel integrity. MAP2K5 and MAPK7 interact specifically with one another and not with MEK1/ERK1 or MEK2/ERK2 pathways. Phosphorylates SGK1 at Ser-78 and this is required for growth factor-induced cell cycle progression. Involved in the regulation of p53/TP53 by disrupting the PML-MDM2 interaction.

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

ab232538 is the carrier-free version of ab40809.

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	ERK5 also known as big MAP kinase 1 (BMK1) is an enzyme that functions as a protein-serine/threonine kinase within the MAP kinase family. It has a molecular weight of approximately 120 kDa. ERK5 is expressed in various tissues including the brain heart and lungs with notable expression in endothelial cells. The protein plays a mechanical role in signal transduction processes which it achieves by transmitting signals from extracellular sources to the cellular nucleus facilitating the regulation of gene expression.
Biological function summary	ERK5 influences cellular functions through its role in promoting cell proliferation and differentiation. It serves as part of a signaling complex that includes the MAP kinase kinase 5 (MEK5). This interaction allows ERK5 to phosphorylate and subsequently activate target substrates such as transcription factors promoting cellular responses necessary for development and survival. ERK5 also plays a role in the response to oxidative stress which contributes to its impact on survival pathways and cellular stress responses.
Pathways	ERK5 acts within the MAPK signaling cascade and is linked to the ERK/MAPK pathway and the phosphoinositide 3-kinase (PI3K) pathway. Within these pathways ERK5 interacts with other MAP kinases and regulatory proteins such as Ras and Raf contributing to a wide range of cellular processes including growth migration and survival. Through these interactions ERK5 influences cellular dynamics and mediates responses to growth factors and stress stimuli.
Associated diseases and disorders	Abnormal activity of ERK5 has been implicated in various conditions including cardiovascular disease and cancer. Elevated ERK5 signaling can promote tumor progression and metastasis in certain cancers by enhancing tumor cell proliferation and survival. In cardiovascular disorders ERK5 interacts with proteins like calcium/calmodulin-dependent protein kinase II (CaMKII) influencing pathological cardiac remodeling and hypertrophy. These associations highlight

ERK5's impact on disease mechanisms and highlight its potential as a therapeutic target.

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

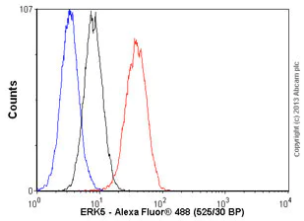
We do not recommend this combination. It is not covered by our product promise.

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.

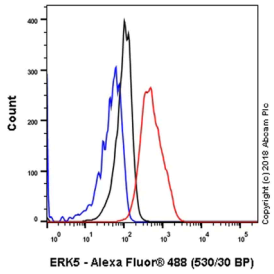
6 product images



Flow Cytometry (Intracellular) - Anti-ERK5 antibody [EP791Y] - BSA and Azide free (ab232538)

ERK5 Flow Cytometry (Intracellular) staining using rabbit Anti-ERK5 antibody

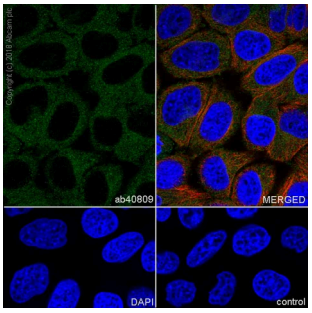
Overlay histogram showing A549 cells stained with unpurified ab40809 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab40809, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150077) at 1/2000 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. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab40809).



Flow Cytometry (Intracellular) - Anti-ERK5 antibody [EP791Y] - BSA and Azide free (ab232538)

ERK5 Flow Cytometry (Intracellular) staining using rabbit Anti-ERK5 antibody

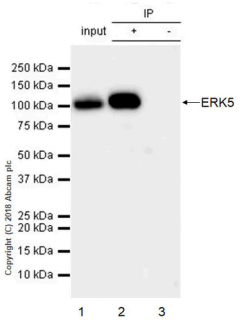
Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling ERK5 with purified ab40809 at 1/50 dilution (10 ug/ml) (red). Cells were fixed with 80% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) secondary antibody was used at 1/2000 dilution. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab40809).



Immunocytochemistry/ Immunofluorescence - Anti-ERK5 antibody [EP791Y] - BSA and Azide free (ab232538)

ERK5 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ERK5 antibody

Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling ERK5 with Purified ab40809 at 1:100 (4.8 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 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab40809).



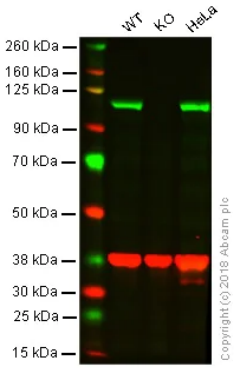
Immunoprecipitation - Anti-ERK5 antibody [EP791Y] - BSA and Azide free (ab232538)

ab40809 (purified) at 1:30 dilution (2ug) immunoprecipitating ERK5 in HeLa whole cell lysate.
Lane 1 (input): HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate 10ug
Lane 2 (+): ab40809 & HeLa whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab40809 in HeLa whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab40809).

All lanes:
Immunoprecipitation - Anti-ERK5 antibody [EP791Y] (ab40809)

Predicted band size: 88 kDa

Observed band size: 115 kDa



Western blot - Anti-ERK5 antibody [EP791Y] - BSA and Azide free (ab232538)

ERK5 Western blot staining using rabbit Anti-ERK5 antibody

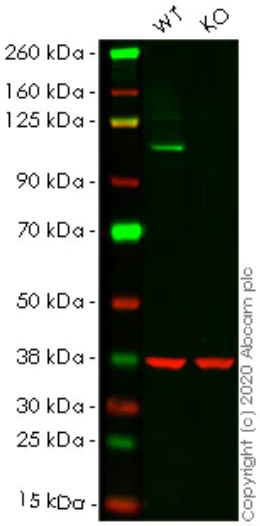
Lane 1: Wild-type HAP1 whole cell lysate (20 µg)
Lane 2: MAPK7 (ERK5) knockout HAP1 whole cell lysate (20 µg)
Lane 3: HeLa whole cell lysate (20 µg)
Lanes 1 - 3: Merged signal (red and green). Green - ab40809 observed at 88 kDa. Red - loading control, ab9484, observed at 37 kDa.

ab40809 was shown to specifically react with ERK5 in wild-type HAP1 cells as signal was lost in MAPK7 (ERK5) knockout cells. Wild-type and MAPK7 (ERK5) knockout samples were subjected to SDS-PAGE. ab40809 and ab9484 (Mouse anti-GAPDH loading control) were incubated overnight at 4°C at 1/1000 dilution and 1/20000 dilution respectively. Blots were developed 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 1/20000 dilution for 1 hour at room temperature before imaging.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab40809).

All lanes:
Western blot - Anti-ERK5 antibody [EP791Y] - BSA and Azide free (ab232538)

Predicted band size: 88 kDa



Western blot - Anti-ERK5 antibody [EP791Y] - BSA and Azide free (ab232538)

ERK5 Western blot staining using rabbit Anti-ERK5 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab40809).
Lanes 1- 2: Merged signal (red and green). Green - ab40809 observed at 115 kDa. Red - Anti-GAPDH antibody [6C5] - Loading Control (ab8245) observed at 37 kDa.

ab40809 was shown to react with ERK5 in wild-type HeLa cells in western blot. Loss of signal was observed when knockout cell line ab265508 (knockout cell lysate ab258042) was used. Wild-type HeLa and MAPK7 knockout HeLa cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab40809 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. 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 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-ERK5 antibody [EP791Y] (ab40809) at 1/1000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
MAPK7 knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human MAPK7 (ERK5) knockout HeLa cell line (ab265508)

Performed under reducing conditions.

Predicted band size: 88 kDa

Observed band size: 115 kDa

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