abcam

ab232017

Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] - 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	E337
Purification technique	Affinity purification Protein A
Specificity	The antibody detects ERK1 phosphorylated on Threonine 202 and Tyrosine 204 and ERK2 phosphorylated on Threonine 185 and Tyrosine 187.
Concentration	1.007 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

WB

Expected

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

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information MAPK3 pT202 + Y204

Function	Serine/threonine kinase which acts as an essential component of the MAP kinase signal transduction pathway (PubMed:34497368). MAPK1/ERK2 and MAPK3/ERK1 are the 2 MAPKs which play an important role in the MAPK/ERK cascade. They participate also in a signaling cascade initiated by activated KIT and KITLG/SCF. Depending on the cellular context, the MAPK/ERK cascade mediates diverse biological functions such as cell growth, adhesion, survival and differentiation through the regulation of transcription, translation, cytoskeletal rearrangements.

The MAPK/ERK cascade also plays a role in initiation and regulation of meiosis, mitosis, and postmitotic functions in differentiated cells by phosphorylating a number of transcription factors. About 160 substrates have already been discovered for ERKs. Many of these substrates are localized in the nucleus, and seem to participate in the regulation of transcription upon stimulation. However, other substrates are found in the cytosol as well as in other cellular organelles, and those are responsible for processes such as translation, mitosis and apoptosis. Moreover, the MAPK/ERK cascade is also involved in the regulation of the 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. The substrates include transcription factors (such as ATF2, BCL6, ELK1, ERF, FOS, HSF4 or SPZ1), cytoskeletal elements (such as CANX, CTTN, GJA1, MAP2, MAPT, PXN, SORBS3 or STMN1), regulators of apoptosis (such as BAD, BTG2, CASP9, DAPK1, IER3, MCL1 or PPARG), regulators of translation (such as EIF4EBP1) and a variety of other signaling-related molecules (like ARHGEF2, DEPTOR, FRS2 or GRB10) (PubMed:35216969). Protein kinases (such as RAF1, RPS6KA1/RSK1, RPS6KA3/RSK2, RPS6KA2/RSK3, RPS6KA6/RSK4, SYK, MKNK1/MNK1, MKNK2/MNK2, RPS6KA5/MSK1, RPS6KA4/MSK2, MAPKAPK3 or MAPKAPK5) and phosphatases (such as DUSP1, DUSP4, DUSP6 or DUSP16) are other substrates which enable the propagation the MAPK/ERK signal to additional cytosolic and nuclear targets, thereby extending the specificity of the cascade. Phosphorylates GJA1 at 'Ser-279' and 'Ser-282' resulting in an increase in GJA1 ubiquitination and ultimately lysosomal degradation (By similarity).

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

ab232017 is the carrier-free version of ab32538.

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

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	Erk1 and Erk2 also known as MAPK3 and MAPK1 are part of the mitogen-activated protein kinase family. These proteins play an important role in signal transduction. Erk1 has a mass of about 44 kDa while Erk2 is slightly smaller at approximately 42 kDa. Both proteins are widely expressed in a variety of tissues contributing to the transmission of signals from the cell surface to the DNA in the cell nucleus. Specifically Erk1 and Erk2 are activated through dual phosphorylation at threonine 202 and tyrosine 204 for Erk1 and threonine 185 and tyrosine 187 for Erk2.
Biological function summary	Erk1 and Erk2 are involved in several essential cellular processes including proliferation differentiation and survival. They often operate as part of a larger complex engaging with other proteins to drive cellular responses. Upon activation they move from the cytoplasm to the nucleus where they regulate the activity of various transcription factors. Erk signaling can adjust gene expression by phosphorylating nuclear targets which influences cell cycle progression and apoptosis.
Pathways	Both Erk1 and Erk2 mainly operate within the MAPK/ERK pathway. This signaling pathway is important for transmitting signals from growth factors and other extracellular stimulants. Related proteins such as Ras and Raf are upstream activators in the pathway. Downstream Erk proteins can impact other cascades including those governing cellular growth and division. By interacting with multiple proteins within these pathways Erk1 and Erk2 ensure accurate cellular responses to environmental changes.
Associated diseases and disorders	Alterations in the function of Erk1 and Erk2 can contribute to cancer development such as colorectal cancer and melanoma. Misregulation of Erk signaling can lead to uncontrolled cell proliferation and tumor growth. These proteins also connect to neurodegenerative disorders like Alzheimer's disease where disrupted Erk signaling may contribute to neuronal damage. Erk1 and Erk2 interact with other

disease-related proteins like BRAF in cancer and APP in Alzheimer's highlighting their role in disease pathophysiology.

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

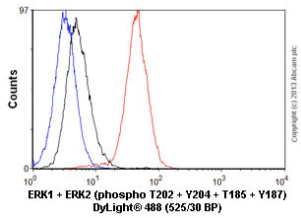
We do not recommend this combination. It is not covered by our product promise.

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.

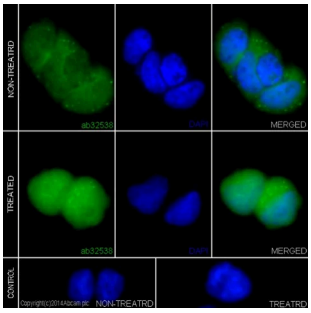
3 product images



Flow Cytometry (Intracellular) - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] - BSA and Azide free (ab232017)

Erk1 (pT202/pY204) + Erk2 (pT185/pY187) Flow Cytometry (Intracellular) staining using rabbit Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody

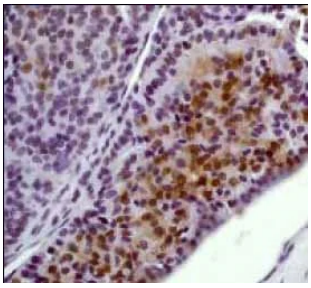
Overlay histogram showing HeLa cells stained with ab32538 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab32538, 1/1000 dilution) for 30 min at 22°C. The secondary antibody used was a goat anti-rabbit DyLight® 488 (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. 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 (ab32538).



Immunocytochemistry/ Immunofluorescence - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] - BSA and Azide free (ab232017)

Erk1 (pT202/pY204) + Erk2 (pT185/pY187) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody

Immunocytochemistry/Immunofluorescence analysis of 4% paraformaldehyde A431+-EGF(100ng/ml,5min) labelling Erk1 (pT202/pY204) + Erk2 (pT185/pY187) with ab32538 at dilution of 1/200. The secondary antibody used was Alexa Fluor® 488 Goat-Anti-Rabbit IgG (ab150077) at dilution of 1/400. The counter stain was done with DAPI (blue).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32538).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] - BSA and Azide free (ab232017)

Erk1 (pT202/pY204) + Erk2 (pT185/pY187) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody

Immunohistochemical analysis of paraffin-embedded human thyroid gland cancer using anti-ERK1(pT202/pY204)/ERK2(pT185/pY187) (ab32538) at dilution of 1:50.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32538).

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

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