abcam

ab32538

# Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337]

Lab Essentials | Recombinant | RabMAb | 20ul selling size

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: 50% Glycerol (glycerin, glycerine), 0.05% BSA |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **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** | 0.828 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

### IHC-P

**Tested**

| | |
|---|---|
| **Species** | Human |

| | |
|---|---|
| **Dilution info** | 1/50 |
| **Notes** | - |

## WB

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 - 1/10000 |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/200 - 1/250 |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 |
| **Notes** | ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. |

## IP

### Not recommended

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

## Target data

See full target information MAPK3 pT202 + Y204

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|---|---|
| **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** | Conditional Ambient |
| **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

**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.

## 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**

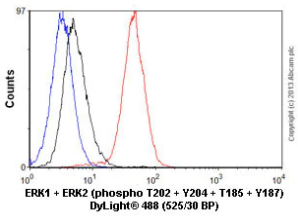
We do not recommend this combination. It is not covered by our product promise.

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:
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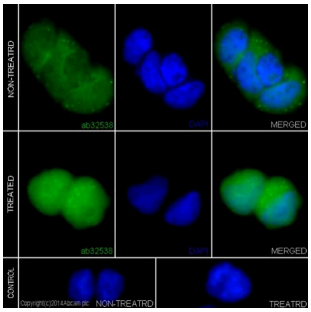
## 4 product images




### Flow Cytometry (Intracellular) - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] (ab32538)

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

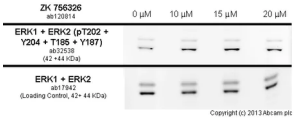
Overlay histogram showing HeLa cells stained with ab32538 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions 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/1x$10^6$ 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.




## Immunocytochemistry/ Immunofluorescence - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] (ab32538)

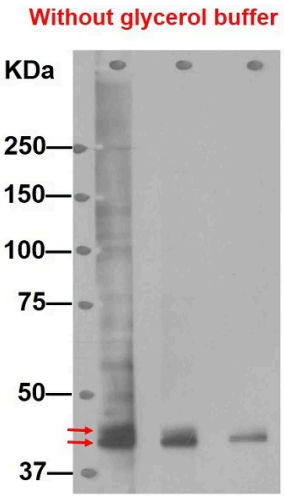
Erk1 (pT202/pY204) + Erk2 (pT185/pY187) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody

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).




## Functional Studies - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] (ab32538)

THP1 cells were incubated at 37°C for 3 minutes with vehicle control (0 µM) and different concentrations of ZK 756326 (ab120814). Increased expression of ERK1 (phospho T202 + Y204 ) + ERK2 (phospho T185 + Y187) (ab32538) in THP1 cells correlates with an increase in ZK 756326 concentration, as described in literature.
Whole cell lysates were prepared with RIPA buffer (containing protease inhibitors and sodium orthovanadate), 10 µg of each were loaded on the gel and the WB was run under reducing conditions. After transfer the membrane was blocked for an hour using 5% BSA before being incubated with ab32538 at 1/500 dilution and ab17942 at 1 µg /ml overnight at 4°C. Antibody binding was detected using an anti-rabbit antibody conjugated to HRP (ab97051) at 1/10000 dilution and visualised using ECL development solution.




## Western blot - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] (ab32538)

Erk1 (pT202/pY204) + Erk2 (pT185/pY187) Western blot staining of A431 treated with EGF for 10 minutes using rabbit Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody

First-antibody diluted with 1% BSA.
Lane 1:
Western blot - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] (ab32538) at 1/500 dilution

Lane 2:
Western blot - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] (ab32538) at 1/2000 dilution

Lane 3:
Western blot - Anti-Erk1 (pT202/pY204) + Erk2 (pT185/pY187) antibody [E337] (ab32538) at 1/10000 dilution

All lanes:
A431 treated with EGF for 10 minutes at 0.1 µg/mL

Secondary

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

Predicted band size: 42 kDa, 44 kDa

Observed band size: 42 kDa, 44 kDa

Exposure time: 3min

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