abcam

ab223500

Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody [SP327]

Lab Essentials | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.6 Preservative: 0.1% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	SP327
Purification technique	Affinity purification Protein A/G

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100
Notes	-

WB

Tested

Species	Human
Dilution info	1/400
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 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

Supplementary info

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

Activity summary	ERK1 and ERK2 also known as p44 and p42 MAPK respectively are important proteins in the MAP kinase signaling pathway. They are expressed in various tissues with significant presence in the brain lungs and skin. ERK1 has a molecular weight of approximately 44 kDa while ERK2 has a molecular weight of around 42 kDa. Both proteins become activated through phosphorylation which is essential for their function in cellular processes.
Biological function summary	ERK1 and ERK2 serve as key players in cellular growth differentiation and survival. They form part of a complex cascade where they transduce signals from the cell membrane to the nucleus after activation by phosphorylation. This phosphorylation enables them to modify various downstream targets involved in regulating gene expression and cellular response to external stimuli.
Pathways	ERK1 and ERK2 are critical components of the MAPK/ERK pathway and the Ras-Raf-MEK-ERK signaling cascade. These pathways regulate a multitude of cellular activities including proliferation and differentiation. In the MAPK/ERK pathway proteins like Ras and Raf serve as upstream activators of ERK1 and ERK2. Both ERK1 and ERK2 also interact with other signaling proteins such as MEK1/2 which directly phosphorylates and activates them.
Associated diseases and disorders	Dysregulation of ERK1 and ERK2 is associated with various pathologies including cancer and neurodegenerative diseases. Abnormal activation of these proteins often leads to uncontrolled cell proliferation contributing to oncogenesis. For instance mutations in proteins like Ras which regulate ERK1 and ERK2 can result in

continuous activation and lead to tumor formation. Furthermore altered ERK1 and ERK2 signaling is linked to neurodegeneration impacting neuronal survival and function.

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

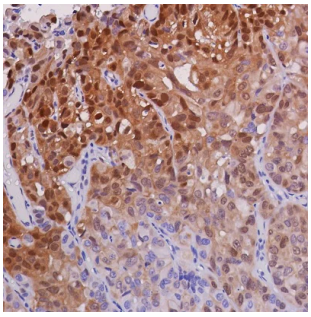
We do not recommend this combination. It is not covered by our product promise.

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.

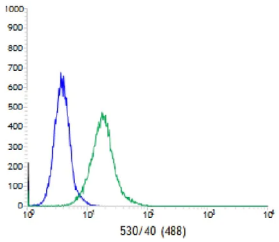
6 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody [SP327] (ab223500)

ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody

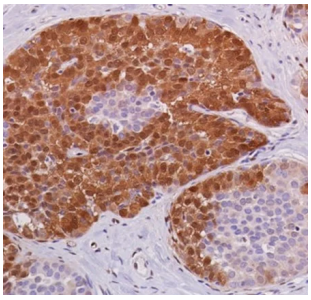
Paraffin-embedded human bladder transitional cell carcinoma tissue stained for ERK1 + ERK2 (phospho T202 + Y204) using ab223500 at 1/100 dilution in immunohistochemical analysis.



Flow Cytometry (Intracellular) - Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody [SP327] (ab223500)

ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) Flow Cytometry (Intracellular) staining using rabbit Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody

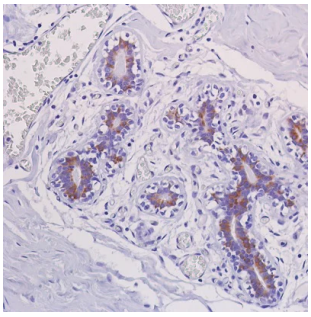
Flow cytometric analysis of ab223500 in A431 (human epidermoid carcinoma cell line) cells + EGF (green) at 1/100 dilution compared to negative control of rabbit IgG (blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody [SP327] (ab223500)

ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody

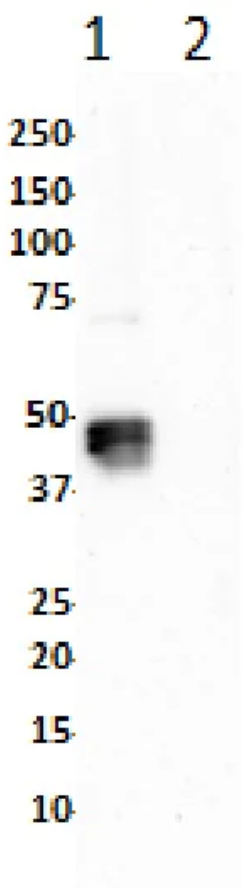
Paraffin-embedded human breast ductal carcinoma tissue stained for ERK1 + ERK2 (phospho T202 + Y204) using ab223500 at 1/100 dilution in immunohistochemical analysis.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody [SP327] (ab223500)

ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody

Paraffin-embedded human breast tissue stained for ERK1 + ERK2 (phospho T202 + Y204) using ab223500 at 1/100 dilution in immunohistochemical analysis.



Western blot - Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody [SP327] (ab223500)

All lanes:
Western blot - Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody [SP327] (ab223500) at 1/400 dilution

Lane 1:
A431 (human epidermoid carcinoma cell line) + EGF cell lysate

Lane 2:
A431 (human epidermoid carcinoma cell line) cell lysate

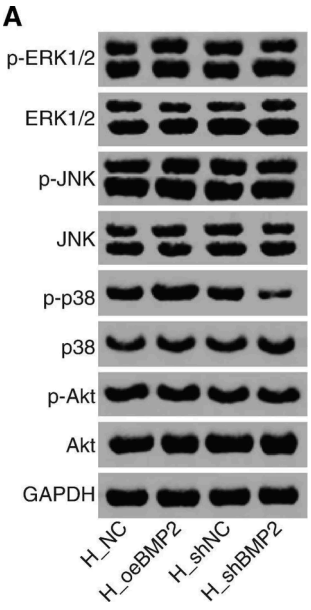


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Western blot - Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody [SP327] (ab223500)

ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) Western blot staining using rabbit Anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody

ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) western blot using anti-ERK1 (phospho T202 + Y204) + ERK2 (phospho T185 + Y187) antibody [SP327] ab223500. Publication image and figure legend from Feng, P. C., Ke, X. F., et al., 2019, Stem Cell Res Ther, PubMed 31387619.

ab223500 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab223500 please see the product overview.

BMP2 regulates the activation of the MARK/p38 signaling pathway in endothelial cells of HCC. a Bands of total p38, ERK1/2, JNK, and Akt proteins and phosphorylated proteins in ECV304 cells measured by Western blot analysis after over-expression or silencing of BMP2. b Expression of p38, ERK1/2, JNK, and Akt proteins and their phosphorylation extents in ECV304 cells. Relative protein expression values were expressed as mean ± standard deviation, and data between two groups were compared by Student's t test. *p < 0.05. HCC, hepatocellular carcinoma; BMP2, bone morphogenetic proteins 2; NC, negative control; MAPK, mitogen-activated protein kinase

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