10320 Camino Santa Fe, Suite G
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ERK2 Antibody
Purified Mouse Monoclonal Antibody
Catalog # AO1073a

Specification

ERK2 Antibody - Product Information

Application	**WB, IHC, IF**
Primary Accession	P28482
Reactivity	**Human, Mouse, Monkey**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**IgG2a**
Calculated MW	**41kDa KDa**

Description
ERK2 (also designated extracellular-signal-related kinase 2 or mitogen-activated protein kinase 1), with 360-amino acid protein (about 40kDa), belongs to the MAP kinase family. MAP kinases act as an integration point for multiple biochemical signals, and are involved in a wide variety of cellular processes such as proliferation, differentiation, transcription regulation and development. The activation of ERK2 requires its phosphorylation by upstream kinases. ERK2 is located in the cytoplasm of resting cells and translocates into the nucleus upon extracellular stimuli by active transport of a dimer. ERK2 is essential for placental development and ERK2 in the trophoblast compartment may be indispensable for the vascularization of the labyrinth.

Immunogen
Purified recombinant fragment of human ERK2 expressed in E. Coli.

Formulation
Purified antibody in PBS containing 0.03% sodium azide.

ERK2 Antibody - Additional Information

Gene ID 5594

Other Names
Mitogen-activated protein kinase 1, MAP kinase 1, MAPK 1, 2.7.11.24, ERT1, Extracellular signal-regulated kinase 2, ERK-2, MAP kinase isoform p42, p42-MAPK, Mitogen-activated protein kinase 2, MAP kinase 2, MAPK 2, MAPK1, ERK2, PRKM1, PRKM2

Dilution
WB~~1/500 - 1/2000
IHC~~1/200 - 1/1000
IF~~1/200 - 1/1000

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions
ERK2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

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ERK2 Antibody - Protein Information

Name MAPK1 (HGNC:6871)

Synonyms ERK2, PRKM1, PRKM2

Function
Serine/threonine kinase which acts as an essential component of the MAP kinase signal transduction pathway. 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 FXR1) and a variety of other signaling-related molecules (like ARHGEF2, DCC, FRS2 or GRB10). 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. Mediates phosphorylation of TPR in response to EGF stimulation. May play a role in the spindle assembly checkpoint. Phosphorylates PML and promotes its interaction with PIN1, leading to PML degradation. Phosphorylates CDK2AP2 (By similarity).

Cellular Location
Cytoplasm, cytoskeleton, spindle. Nucleus. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Cytoplasm. Membrane, caveola {ECO:0000250|UniProtKB:P63086}. Cell junction, focal adhesion {ECO:0000250|UniProtKB:P63085}. Note=Associated with the spindle during prometaphase and metaphase (By similarity). PEA15-binding and phosphorylated DAPK1 promote its cytoplasmic retention. Phosphorylation at Ser- 246 and Ser-248 as well as autophosphorylation at Thr-190 promote nuclear localization.

ERK2 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety

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- Cell Culture

ERK2 Antibody - Images

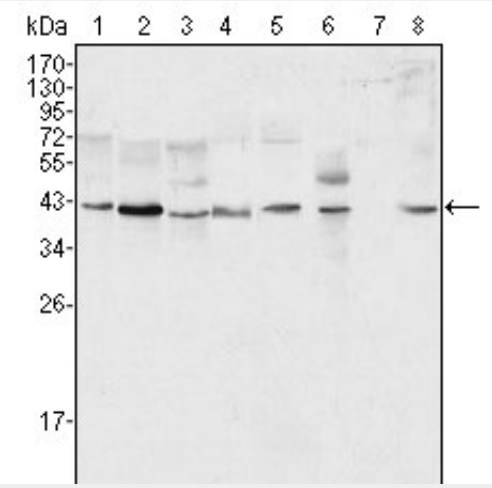


Figure 1: Western blot analysis using ERK2 mouse mAb against Hela (1), NIH/3T3 (2), MCF-7 (3), HEK293 (4), Jurkat (5), A549 (6), NTERA-2 (7) and SMMC-7721 (8) cell lysate.

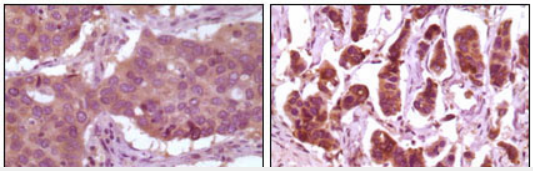


Figure 2: Immunohistochemical analysis of paraffin-embedded human lung carcinoma (left) and breast carcinoma (right) showing cytoplasmic localization using ERK2 mouse mAb with DAB staining.

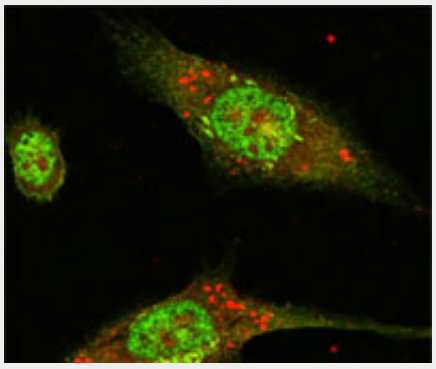


Figure 3: Confocal immunofluorescence analysis of Eca-109 cells using ERK2 mouse mAb (green).

ERK2 Antibody - References

1. Angelique W. Whitehurst, Fred L. Robinson, Mary Shannon Moore. J. Biol. Chem., Mar 2004; 279: 12840 – 12847. 2. N Hatano, Y Mori, M Oh-hora. Genes Cells, Nov 2003; 8: 847 - 856.