10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

ERK1/2 Rabbit pAb

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Catalog # AP52230

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	P27361
Reactivity	Human, Mouse, Rat
Predicted	Chicken, Dog, Pig, Horse, Rabbit, Sheep, Goat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	43136
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human ERK1/2
Epitope Specificity	251-358/358
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Cytoplasm, cytoskeleton, spindle. Nucleus. Cytoplasm, cytoskeleton, centrosome. Cytoplasm. Note=Associated with the spindle duringprometaphase and metaphase. PEA15-binding andphosphorylated DAPK1 promote its cytoplasmic retention.Phosphorylation at Ser-244 and Ser-246 as well asautophosphorylation at Thr-188 promote nuclear localization.
SIMILARITY	Belongs to the protein kinase superfamily. CMGCSer/Thr protein kinase family. MAP kinase subfamily. Contains 1 protein kinase domain.
SUBUNIT	Binds both upstream activators and downstream substratesin multimolecular complexes. Interacts with ADAM15, ARHGEF2, ARRB2,DAPK1 (via death domain), HSF4, IER3, IPO7, DUSP6, NISCH, SGK1, andisoform 1 of NEK2. Interacts (via phosphorylated form) with TPR(via C-terminus region and phosphorylated form); the interactionrequires dimerization of MAPK1/ERK2 and increases following EGFstimulation. Interacts (phosphorylated form) withCAV2 ('Tyr-19'-phosphorylated form); the interaction, promoted byinsulin, leads to nuclear location and MAPK1 activation. Interacts with DCC. Interacts withMORG1, PEA15 and MKNK2. MKNK2 isoform 1 binding prevents fromdephosphorylation and inactivation. The phosphorylated forminteracts with PML.
Post-translational modifications	Dually phosphorylated on Thr-183 and Tyr-185, which activatesthe enzyme. Ligand-activated ALK induces tyrosine phosphorylation. Dephosphorylated by PTPRJ at Tyr-185. Phosphorylated upon FLT3 and KIT signaling.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	The protein encoded by this gene is a member of the MAPkinase family. MAP kinases, also known as extracellularsignal-regulated kinases (ERKs), act in a signaling cascade thatregulates various cellular processes such as proliferation,differentiation, and cell cycle progression in response to avariety of extracellular signals. This kinase is activated byupstream kinases, resulting in its translocation to the nucleuswhere it phosphorylates nuclear targets.

Alternatively splicedtranscript variants encoding different protein isoforms have beendescribed. [provided by RefSeq, Jul 2008].

Additional Information

Gene ID	5595
Other Names	Mitogen-activated protein kinase 3, MAP kinase 3, MAPK 3, 2.7.11.24, ERT2, Extracellular signal-regulated kinase 1, ERK-1, Insulin-stimulated MAP2 kinase, MAP kinase isoform p44, p44-MAPK, Microtubule-associated protein 2 kinase, p44-ERK1, MAPK3, ERK1, PRKM3
Target/Specificity	Widely expressed.
Dilution	WB=1:1000-5000,IHC-P=1:100-500,IHC-F=1:100-500,ICC/IF=1:50-200,IF=1:100-500,Flow-Cyt=1 □g/Test
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	MAPK3
Synonyms	ERK1, PRKM3
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).
Cellular Location	Cytoplasm {ECO:0000250|UniProtKB:P21708}. Nucleus. Membrane, caveola {ECO:0000250|UniProtKB:P21708}. Cell junction, focal adhesion {ECO:0000250|UniProtKB:Q63844} Note=Autophosphorylation at Thr-207 promotes nuclear localization (PubMed:19060905). PEA15-binding redirects the biological outcome of MAPK3 kinase-signaling by sequestering MAPK3 into the cytoplasm (By similarity). {ECO:0000250|UniProtKB:Q63844, ECO:0000269|PubMed:19060905}

Background

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References

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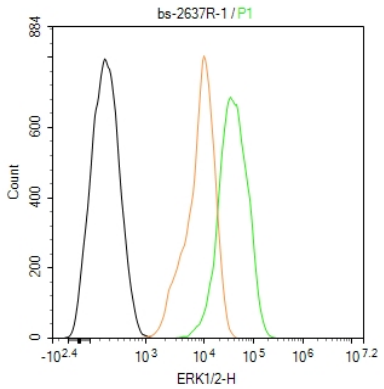
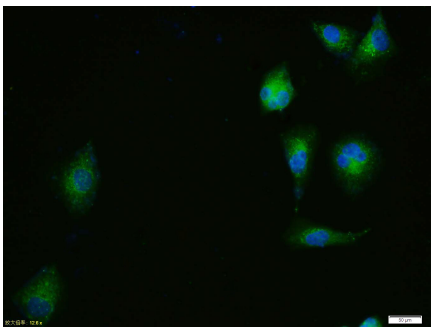
Carninci P.,et al.Science 309:1559-1563(2005).
Lubec G.,et al.Submitted (JAN-2009) to UniProtKB.
Ershler M.A.,et al.Gene 124:305-306(1993).
Payne D.M.,et al.EMBO J. 10:885-892(1991).

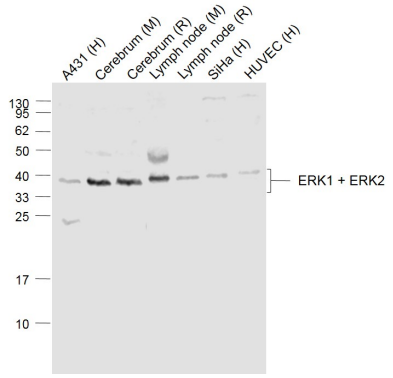
Images



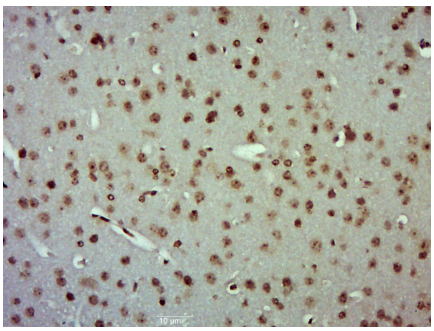
The Hela (H) cells were fixed with 4% PFA (10 min at r.t.) and then permeabilized with 90% ice-cold methanol for 20 min at -20°C,the cells then were incubated in 5%BSA to block non-specific protein-protein interactions (30 min at r.t.),followed by secondary antibody incubation for 40 min at room temperature. Primary Antibody (green):Rabbit Anti-ERK1/2 antibody (AP52230): 1 µg/10^6 cells; Isotype Control (orange): Rabbit IgG (AP52230). Blank control (black): PBS. Acquisition of 20,000 events was performed.



Tissue/cell: HUVEC cell; 4% Paraformaldehyde-fixed; Triton X-100 at room temperature for 20 min; Blocking buffer (normal goat serum, C-0005) at 37°C for 20 min; Antibody incubation with (ERK1 + ERK2) Polyclonal Antibody, Unconjugated (AP52230) 1:100, 90 minutes at 37°C; followed by a conjugated Goat Anti-Rabbit IgG antibody (AP52230-FITC) at 37°C for 90 minutes, DAPI (blue, C02-04002) was used to stain the cell nuclei.



Sample:
Lane 1: A431 (Human) Cell Lysate at 30 ug
Lane 2: Cerebrum (Mouse) Lysate at 40 ug
Lane 3: Cerebrum (Rat) Lysate at 40 ug
Lane 4: Lymph node (Mouse) Lysate at 40 ug
Lane 5: Lymph node (Rat) Lysate at 40 ug
Lane 6: SiHa (Human) Cell Lysate at 30 ug
Lane 7: HUVEC (Human) Cell Lysate at 30 ug
Primary: Anti-ERK1 + ERK2 (AP52230) at 1/1000 dilution
Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution
Predicted band size: 44’42 kD
Observed band size: 38 kD



Paraformaldehyde-fixed, paraffin embedded (Mouse brain); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (ERK1 + ERK2) Polyclonal Antibody, Unconjugated (AP52230) at 1:500 overnight at 4°C, followed by a conjugated secondary (sp-0023) for 20 minutes and DAB staining.