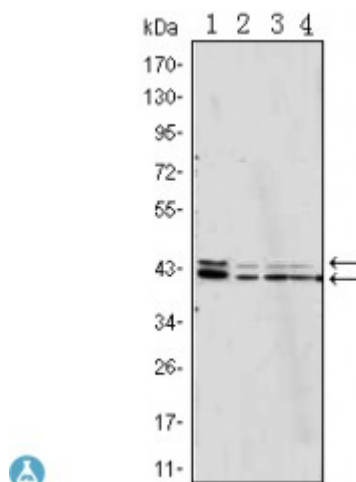


Anti-ERK 1/2 antibody



Description	Mouse monoclonal to ERK 1/2.
Model	STJ98046
Host	Mouse
Reactivity	Human, Mouse
Applications	ELISA, FC, IHC, WB
Immunogen	Purified recombinant fragment of human ERK 1/2 expressed in E. Coli.
Gene ID	5594
Gene Symbol	MAPK1
Dilution range	WB 1:500-1:2000IHC 1:200-1:1000FC 1:200-1:400ELISA 1:10000
Specificity	ERK 1/2 Monoclonal Antibody detects endogenous levels of ERK 1/2 protein.
Purification	Affinity purification
Clone ID	3F8
Note	For Research Use Only (RUO).
Protein Name	Mitogen-activated protein kinase 1 MAP kinase 1 MAPK 1 ERT1 Extracellular signal-regulated kinase 2 ERK-2 MAP kinase isoform p42 p42-MAPK Mitogen-activated protein kinase 2 MAP kinase 2 MAPK 2
Clonality	Monoclonal
Conjugation	Unconjugated
Isotype	IgG2b

Formulation	Ascitic fluid containing 0.03% sodium azide.
Storage Instruction	Store at -20°C, and avoid repeat freeze-thaw cycles.
Database Links	HGNC:6871OMIM:176948
Alternative Names	Mitogen-activated protein kinase 1 MAP kinase 1 MAPK 1 ERT1 Extracellular signal-regulated kinase 2 ERK-2 MAP kinase isoform p42 p42-MAPK Mitogen-activated protein kinase 2 MAP kinase 2 MAPK 2
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 plays also 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, 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 respons 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 . Acts as a transcriptional repressor. Binds to a [GC]AAA[GC] consensus sequence. Repress the expression of interferon gamma-induced genes. Seems to bind to the promoter of CCL5, DMP1, IFIH1, IFITM1, IRF7, IRF9, LAMP3, OAS1, OAS2, OAS3 and STAT1. Transcriptional activity is independent of kinase activity.
Sequence and Domain Family	The TXY motif contains the threonine and tyrosine residues whose phosphorylation activates the MAP kinases.
Cellular Localization	Cytoplasm, cytoskeleton, spindle Nucleus. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Cytoplasm. Membrane, caveola. Associated with the spindle during prometaphase and metaphase . PEA15-binding and phosphorylated DAPK1 promote its cytoplasmic retention.

Post-translational Modifications

Phosphorylation at Ser- 246 and Ser-248 as well as autophosphorylation at Thr-190 promote nuclear localization.

Phosphorylated upon KIT and FLT3 signaling . Dually phosphorylated on Thr-185 and Tyr-187, which activates the enzyme. Undergoes regulatory phosphorylation on additional residues such as Ser-246 and Ser-248 in the kinase insert domain (KID) These phosphorylations, which are probably mediated by more than one kinase, are important for binding of MAPK1/ERK2 to importin-7 (IPO7) and its nuclear translocation. In addition, autophosphorylation of Thr-190 was shown to affect the subcellular localization of MAPK1/ERK2 as well. Ligand-activated ALK induces tyrosine phosphorylation. Dephosphorylated by PTPRJ at Tyr-187. Phosphorylation on Ser-29 by SGK1 results in its activation by enhancing its interaction with MAP2K1/MEK1 and MAP2K2/MEK2. DUSP3 and DUSP6 dephosphorylate specifically MAPK1/ERK2 and MAPK3/ERK1 whereas DUSP9 dephosphorylates a broader range of MAPKs. ISGylated.