SunLong Biotech Co.,LTD
Tel: 0086-571-56623320 Fax:0086-571-56623318
E-mail:sales@sunlongbiotech.com
www.sunlongbiotech.com

[Primary Antibody]

Rabbit Anti-phospho-ERK1 + 2 (Thr183/Tyr185)antibody

Catalog Number: SL1522R

FOR RESEARCH USE ONLY

[DATASHEET]

Host:	Rabbit
Isotype:	IgG
Clonality:	Polyclonal
Target:	phospho-ERK1 + 2 (Thr183/Tyr185)
Immunogen:	KLH conjugated Synthesised phosphopeptide derived from mouse ERK1 around the phosphorylation site of Thr183/Tyr185: FL(p-T)E(p-Y)V
Purification:	affinity purified by Protein A
Concentration:	1mg/ml
Storage:	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol. Shipped at 4℃. Store at -20 °C for one year. Avoid repeated freeze/thaw cycles.
Applications:	ICC/IF=1:50-200 （Paraffin sections need antigen repair） not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Reactivity:	Human(predicted:Mouse,Rat,Chicken,Dog,Cow,Horse,Rabbit,GuineaPig)
Predicted MW.:	42/44kDa
Subcellular Location:	The nucleus cytoplasmic
Background:	Mitogen-activated protein kinase (MAPK) signaling cascades include MAPK or extracellular signal-regulated kinase (ERK), MAPK kinase (MKK or MEK), and MAPK kinase kinase (MAPKKK or MEKK). MAPKK kinase/MEKK phosphorylates and activates its downstream protein kinase, MAPK kinase/MEK, which in turn activates MAPK. The kinases of these signaling cascades are highly conserved, and homologs exist in yeast, Drosophila, and mammalian cells. MAPKKK5 contains 1,374 amino acids with all 11 kinase subdomains. Northern blot analysis shows that MAPKKK5 transcript is abundantly expressed in human heart and pancreas. The MAPKKK5 protein phosphorylates and activates MKK4 (aliases SERK1, MAPKK4) in vitro, and activates c-Jun N-terminal kinase (JNK)/stress-activated protein kinase (SAPK) during transient expression in COS and 293 cells; MAPKKK5 does not activate MAPK/ERK. [provided by RefSeq, Jul 2008]

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	Function: Serine/threonine kinase which acts as an essentialcomponent of the MAP kinase signal transduction pathway. MAPK1/ERK2and MAPK3/ERK1 are the 2 MAPKs which play an important role in theMAPK/ERK cascade. They participate also in a signaling cascadeinitiated by activated KIT and KITLG/SCF. Depending on the cellularcontext, the MAPK/ERK cascade mediates diverse biological functionssuch as cell growth, adhesion, survival and differentiation throughthe regulation of transcription, translation, cytoskeletalrearrangements. The MAPK/ERK cascade plays also a role ininitiation and regulation of meiosis, mitosis, and postmitoticfunctions in differentiated cells by phosphorylating a number oftranscription factors. About 160 substrates have already beendiscovered for ERKs. Many of these substrates are localized in thenucleus, and seem to participate in the regulation of transcriptionupon stimulation. However, other substrates are found in thecytosol as well as in other cellular organelles, and those areresponsible for processes such as translation, mitosis andapoptosis. Moreover, the MAPK/ERK cascade is also involved in theregulation of the endosomal dynamics, including lysosome processingand endosome cycling through the perinuclear recycling compartment(PNRC); as well as in the fragmentation of the Golgi apparatusduring mitosis. The substrates include transcription factors (suchas 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 avariety 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) andphosphatases (such as DUSP1, DUSP4, DUSP6 or DUSP16) are othersubstrates which enable the propagation the MAPK/ERK signal toadditional cytosolic and nuclear targets, thereby extending thespecificity of the cascade. Mediates phosphorylation of TPR inrespons to EGF stimulation. May play a role in the spindle assemblycheckpoint. Phosphorylates PML and promotes its interaction withPIN1, leading to PML degradation (By similarity). [FUNCTION] Acts as a transcriptional repressor. Binds to a[GC]AAA[GC] consensus sequence. Repress the expression ofinterferon gamma-induced genes. Seems to bind to the promoter ofCCL5, DMP1, IFIH1, IFITM1, IRF7, IRF9, LAMP3, OAS1, OAS2, OAS3 andSTAT1.

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	Transcriptional activity is independent of kinase activity(By similarity). **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 (By similarity). Interacts (phosphorylated form) withCAV2 ('Tyr-19'-phosphorylated form); the interaction, promoted byinsulin, leads to nuclear location and MAPK1 activation (Bysimilarity). Interacts with DCC (By similarity). Interacts withMORG1, PEA15 and MKNK2. MKNK2 isoform 1 binding prevents fromdephosphorylation and inactivation. The phosphorylated forminteracts with PML (By similarity). **Subcellular Location:** Cytoplasm, cytoskeleton, spindle (Bysimilarity). Nucleus. Cytoplasm, cytoskeleton, centrosome (Bysimilarity). Cytoplasm. Note=Associated with the spindle duringprometaphase and metaphase (By similarity). PEA15-binding andphosphorylated DAPK1 promote its cytoplasmic retention.Phosphorylation at Ser-244 and Ser-246 as well asautophosphorylation at Thr-188 promote nuclear localization (Bysimilarity). **Tissue Specificity:** Widely expressed. **Post-translational modifications:** Dually phosphorylated on Thr-183 and Tyr-185, which activatesthe enzyme. Ligand-activated ALK induces tyrosine phosphorylation(By similarity). Dephosphorylated by PTPRJ at Tyr-185 (Bysimilarity). Phosphorylated upon FLT3 and KIT signaling (Bysimilarity). **Similarity:** Belongs to the protein kinase superfamily. CMGCSer/Thr protein kinase family. MAP kinase subfamily. Contains 1 protein kinase domain. **Database links:** **Entrez Gene:** 5594 Human **Entrez Gene:** 5595 Human **Entrez Gene:** 26413 Mouse **Entrez Gene:** 26417 Mouse **Entrez Gene:** 116590 Rat **Entrez Gene:** 50689 Rat Kinases and Phosphatases（Kinases and Phosphatases） Mitogen-activated protein kinase-ERK (Mitogen-activated protein kinase 1, MAPK-1; P42-MAPK; Extracellular signal-regulated kinase 2, ERK-2; MAPK-2 Formerly also known as: ERK2, MAPK-α, MAPK1, MAPK2, p42MAPK) A group of protein serine/threonine kinases that can be activated by various extracellular signals, located at the terminal position of the

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	cytoplasmic signal transduction pathway; after activation, it translocates to the nucleus, acts on nuclear transcription factors, and regulates gene expression. It mainly participates in the cellular response to various stimuli such as growth factors, hormones, cytokines, and stress, as well as in cell growth and differentiation processes. Studies have confirmed that the MAPKSignal transduction pathway exists in most cells and plays a crucial role in transducing extracellular stimuli Signal transduction to cells and their nuclei and causing Cell biology responses (such as cell proliferation, differentiation, transformation, and apoptosis). Studies have shown that the MAPKSignal transduction pathway is highly conserved in biological evolution within cells. Multiple parallel MAPK signaling pathways have now been found in both lower prokaryotic cells and higher mammalian cells. Different extracellular stimuli can use different MAPK signaling pathways and mediate different Cell biology responses through their mutual regulation.

[VALIDATION IMAGES]

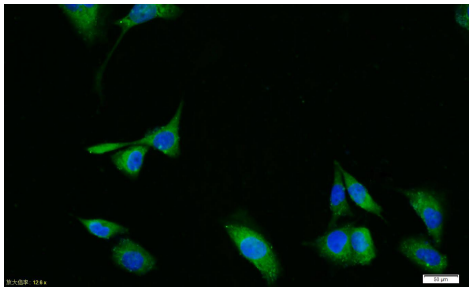


Figure 1. Tissue/cell: HUVEC cell; 4% Paraformaldehyde-fixed; Triton X-100 at room temperature for 20 min; Blocking buffer (normal goat serum, C-0005) at 37°C for 20 min; Antibody incubation with (phospho-ERK1 + 2 (Thr183/Tyr185)) Polyclonal Antibody, Unconjugated (SL1522R) 1:100, 90 minutes at 37°C; followed by a conjugated Goat Anti-Rabbit IgG antibody (SL0295G-FITC) at 37°C for 90 minutes, DAPI (blue, C02-04002) was used to stain the cell nuclei

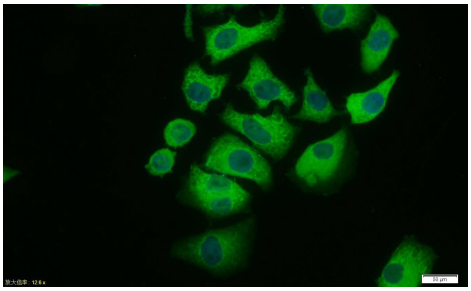


Figure 2. Tissue/cell: Hela cell; 4% Paraformaldehyde-fixed; Triton X-100 at room temperature for 20 min; Blocking buffer (normal goat serum, C-0005) at 37°C for 20 min; Antibody incubation with (phospho-ERK1 + 2 (Thr183/Tyr185)) polyclonal Antibody, Unconjugated (SL1522R) 1:100, 90 minutes at 37°C; followed by a FITC conjugated Goat Anti-Rabbit IgG antibody at 37°C for 90 minutes, DAPI (blue, C02-04002) was used to stain the cell nuclei

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