ARG30264
Phospho ERK1 + ERK2 Antibody Duo (Total, pT202 / Y204)

Package: 1 pair
Store at: -20°C

Component

Cat. No.	Component Name	Host clonality	Reactivity	Application	Package
ARG55797	anti-ERK1 + ERK2 antibody	Rabbit pAb	Hu, Ms, Rat	ICC/IF, IHC-P, WB	50 µl
ARG52277	anti-ERK1 + ERK2 phospho (Thr202 / Tyr204) antibody	Rabbit pAb	Dog, Hu, Ms, Rat	ICC/IF, IHC-P, WB	50 µl

Summary

Product Description

MAPKs (mitogen-activated protein kinases) are serine-threonine kinases that regulate a wide variety of cellular functions. Six groups of MAPK have so far been identified: Extracellular signal-regulated kinases (ERK1, ERK2), c-Jun N-terminal kinases (JNKs), p38 isoforms (MAPK11, MAPK12, MAPK13, MAPK14), ERK5 (MAPK7), ERK3 (MAPK6) and ERK4 (MAPK4) and ERK7 / 8 (MAPK15). ERK 1 and ERK 2 transduce signals from growth factors and are key in regulating differentiation and proliferation in many cell types. Upon activation by MEK, ERK1 and 2 translocate to the nucleus where they phosphorylate transcription factors such as Elk1 and downstream kinases such as p90 RSK. JNK 1,2 and 3 (sometimes known as SAPKs or stress-activated kinases). Dysregulation of MAPK kinase pathways has been associated with various diseases including cancer (ERK), neurodegeneration (JNK) and inflammation (p38). MEK1 / 2 catalyze the phosphorylation of human ERK1 / 2 at Tyr204 / 187 and then Thr202 / 185. The phosphorylation of both tyrosine and threonine is required for enzyme activation. arigo ARG30264 Erk1 / 2 MAPK phospho Duos contents antibodies recognize total ERK1 / 2 and ERK1 / 2 phosphorylated at Thr202 / Tyr204, is useful for the researchers to study ERK1 / 2 phospho-cascade and monitor the total ERK1 / 2 expression level.

Related news:
Understanding Your Cells: Choose the right markers

Target Name

ERK1 + ERK2

Alternate Names

Phospho ERK1 + ERK2 antibody; Phospho Extracellular signal-regulated kinase 1 and 2 antibody; ERK1 + ERK2 phospho (Thr202 / Tyr204) antibody; ERK1 + ERK2 antibody

Properties

Storage instruction

For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C or below. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use.

Note

For laboratory research only, not for drug, diagnostic or other use.

Bioinformation

Gene Symbol

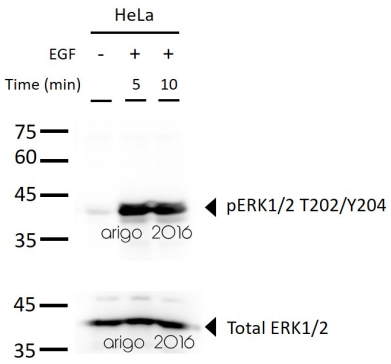
MAPK1

Gene Full Name

Phospho Extracellular signal-regulated kinase 1 and 2 (ERK1 + ERK2) Antibody Duo

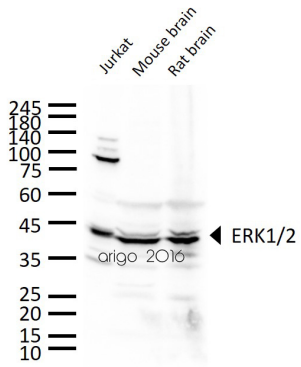
Background	ERK1 is a member of the MAP kinase family. MAP kinases, also known as extracellular signal-regulated kinases (ERKs), act in a signaling cascade that regulates various cellular processes such as proliferation, differentiation, and cell cycle progression in response to a variety of extracellular signals. This kinase is activated by upstream kinases, resulting in its translocation to the nucleus where it phosphorylates nuclear targets. Alternatively spliced transcript variants encoding different protein isoforms have been described. [provided by RefSeq, Jul 2008] ERK2 is a member of the MAP kinase family. MAP kinases, also known as extracellular signal-regulated kinases (ERKs), 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 this kinase requires its phosphorylation by upstream kinases. Upon activation, this kinase translocates to the nucleus of the stimulated cells, where it phosphorylates nuclear targets. One study also suggests that this protein acts as a transcriptional repressor independent of its kinase activity. The encoded protein has been identified as a moonlighting protein based on its ability to perform mechanistically distinct functions. Two alternatively spliced transcript variants encoding the same protein, but differing in the UTRs, have been reported for this gene. [provided by RefSeq, Jan 2014]
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, 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. [UniProt]
Highlight	Related Product: anti-ERK1 + ERK2 antibody;
PTM	Phosphorylated upon KIT and FLT3 signaling (By similarity). 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.

Images



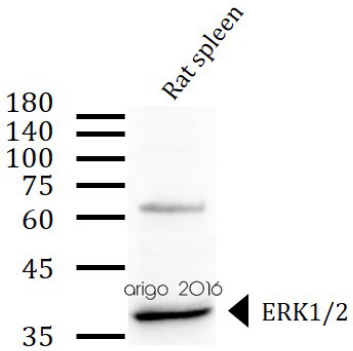
ARG52277 & ARG55797 WB image

Western blot: 30 µg of 1) HeLa, 2) HeLa + EGF 5 min, and 3) HeLa + EGF 10 min stained with ARG52277 anti-ERK1/2 phospho (Thr202 / Tyr204) antibody (Top) and ARG55797 anti-ERK1/2 antibody (Bottom) at 1:1000 dilution.



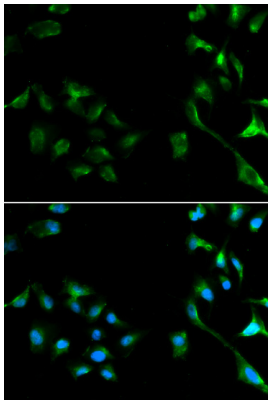
ARG55797 anti-ERK1/2 antibody WB image

Western blot: 30 µg of Jurkat, Mouse brain, and Rat brain lysates stained with ARG55797 anti-ERK1/2 antibody at 1:1000 dilution.



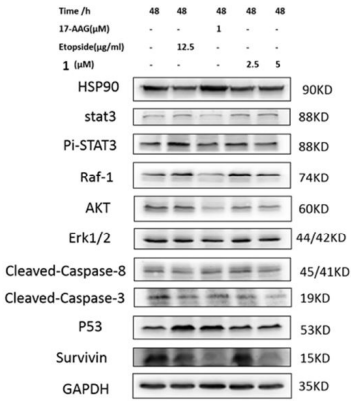
ARG55797 anti-ERK1/2 antibody WB image

Western blot: 30 µg of Rat spleen lysate stained with ARG55797 anti-ERK1/2 antibody at 1:500 dilution.



ARG55797 anti-ERK1/2 antibody ICC/IF image

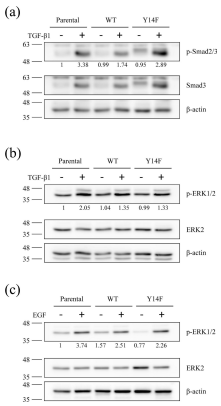
Immunofluorescence: A549 cell stained with ARG55797 anti-ERK1/2 antibody. Blue: DAPI for nuclear staining.



ARG55797 anti-ERK1 + ERK2 antibody WB image

Western blot: HCT116 and HeLa stained with ARG55797 anti-ERK1 + ERK2 antibody.

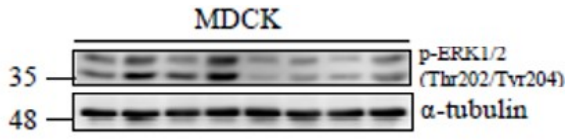
From Wang N et al. Eur J Med Chem- (2018), doi: 10.1016/j.ejmech.2018.09.015, Fig. 13



ARG52277 anti-ERK1 + ERK2 phospho (Thr202 / Tyr204) antibody WB image

Western blot: MDCK stained with ARG40897 anti-Smad 2 + Smad 3 phospho (Ser465/467) / phospho (Ser423/425) antibody and ARG52277 anti-ERK1 + ERK2 phospho (Thr202 / Tyr204) antibody.

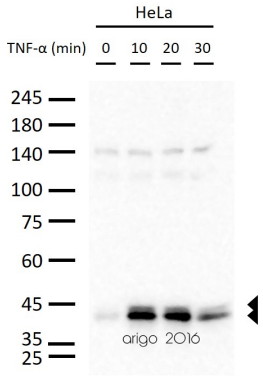
From Hsiao SC et al. Biochim Biophys Acta Gen Subj. (2024), doi: 10.1016/j.bbagen.2024.130660, Fig.6.



ARG52277 anti-ERK1 + ERK2 phospho (Thr202 / Tyr204) antibody WB image

Western blot: Madin-Darby Canine Kidney stained with ARG52277 anti-ERK1 + ERK2 phospho (Thr202 / Tyr204) antibody.

From Heng-Ai Chang et al. Cell Death Discov (2023), doi: 10.1038/s41420-023-01687-5, Fig. S5..



ARG52277 anti-ERK1 + ERK2 phospho (Thr202 / Tyr204) antibody WB image

Western blot: 30 µg of HeLa cells untreated or treated with TNF-alpha at 20 ng/ml dilution (10, 20, and 30 min). The blots were stained with ARG52277 anti-ERK1 + ERK2 phospho (Thr202 / Tyr204) antibody at 1:1000 dilution.