SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 1 (E-6): sc-271270

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mitogen-activated protein kinase (MAPK) signaling pathways involve two closely related MAP kinases, known as extracellular-signal-related kinase 1 (ERK 1, p44) and 2 (ERK 2, p42). Growth factors, steroid hormones, G protein-coupled receptor ligands and neurotransmitters can initiate MAPK signaling pathways. Activation of ERK 1 and ERK 2 requires phosphorylation by up-stream kinases such as MAP kinase kinase (MEK), MEK kinase and Raf-1. ERK 1 and ERK 2 phosphorylation can occur at specific tyrosine and threonine sites mapping within consensus motifs that include the threonine-glutamate-tyrosine motif. ERK activation leads to dimerization with other ERKs and subsequent localization to the nucleus. Active ERK dimers phosphorylate serine and threonine residues on nuclear proteins and influence a host of responses that include proliferation, differentiation, transcription regulation and development. The human ERK 1 gene maps to chromosome 16p11.2 and encodes a 379 amino acid protein that shares 83% sequence identity to ERK 2.

REFERENCES

1. Boulton, T.G., et al. 1991. ERKs: a family of protein-serine/threonine kinases that are activated and tyrosine phosphorylated in response to Insulin and NGF. Cell 65: 663-675.
2. Crews, C.M., et al. 1992. The primary structure of MEK, a protein kinase that phosphorylates the ERK gene product. Science 258: 478-480.

CHROMOSOMAL LOCATION

Genetic locus: MAPK3 (human) mapping to 16p11.2; Mapk3 (mouse) mapping to 7 F3.

SOURCE

ERK 1 (E-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 291-335 within subdomain XI of ERK 1 of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ERK 1 (E-6) is available conjugated to agarose (sc-271270 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271270 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271270 PE), fluorescein (sc-271270 FITC), Alexa Fluor® 488 (sc-271270 AF488), Alexa Fluor® 546 (sc-271270 AF546), Alexa Fluor® 594 (sc-271270 AF594) or Alexa Fluor® 647 (sc-271270 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271270 AF680) or Alexa Fluor® 790 (sc-271270 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271270 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

ERK 1 (E-6) is recommended for detection of ERK 1 p44 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

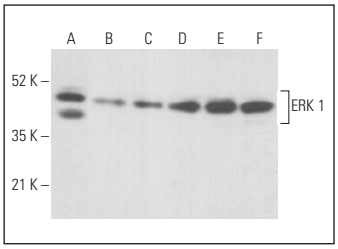
ERK 1 (E-6) is also recommended for detection of ERK 1 p44 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for ERK 1 siRNA (h): sc-29307, ERK 1 siRNA (m): sc-29308, ERK 1 siRNA (r): sc-156030, ERK 1 shRNA Plasmid (h): sc-29307-SH, ERK 1 shRNA Plasmid (m): sc-29308-SH, ERK 1 shRNA Plasmid (r): sc-156030-SH, ERK 1 shRNA (h) Lentiviral Particles: sc-29307-V, ERK 1 shRNA (m) Lentiviral Particles: sc-29308-V and ERK 1 shRNA (r) Lentiviral Particles: sc-156030-V.

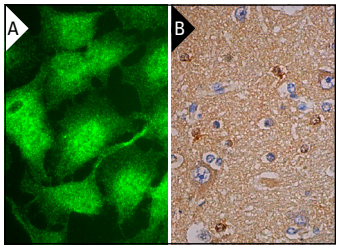
Molecular Weight of ERK 1: 44 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, NIH/3T3 whole cell lysate: sc-2210 or HL-60 whole cell lysate: sc-2209.

DATA



ERK 1 (E-6): sc-271270. Western blot analysis of ERK 1 expression in NIH/3T3 (**A**), K-562 (**B**), HL-60 (**C**), U-2 OS (**D**), ALL-SIL (**E**) and M1 (**F**) whole cell lysates.



ERK 1 (E-6): sc-271270. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic and nuclear localization (**A**). ERK 1 (E-6) HRP: sc-271270 HRP. Direct immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic staining of neuronal cells and endothelial cells, nuclear staining of glial cells and neuropil staining. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214 (**B**).

SELECT PRODUCT CITATIONS

1. Liu, H., et al. 2011. Apoptosis induced by a new flavonoid in human hepa-toma Hep G2 cells involves reactive oxygen species-mediated mitochondrial dysfunction and MAPK activation. Eur. J. Pharmacol. 654: 209-216.
2. Yang, C.C., et al. 2019. RTA 408 inhibits interleukin-1β-induced MMP-9 expression via suppressing protein kinase-dependent NFκB and AP-1 activation in rat brain astrocytes. Int. J. Mol. Sci. 20: 2826.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.