SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 2 (12A4): sc-81457

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 upstream 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 2 gene maps to chromosome 22q11.21 and encodes a 360 amino acid protein.

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: MAPK1 (human) mapping to 22q11.21; Mapk1 (mouse) mapping to 16 A3.

SOURCE

ERK 2 (12A4) is a mouse monoclonal antibody raised against amino acids 200-250 of ERK 2 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

ERK 2 (12A4) is available conjugated fluorescein (sc-81457 FITC, 200 µg/ml), for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

ERK 2 (12A4) is recommended for detection of ERK 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for ERK 2 siRNA (h): sc-35335, ERK 2 siRNA (m): sc-35336, ERK 2 shRNA Plasmid (h): sc-35335-SH, ERK 2 shRNA Plasmid (m): sc-35336-SH, ERK 2 shRNA (h) Lentiviral Particles: sc-35335-V and ERK 2 shRNA (m) Lentiviral Particles: sc-35336-V.

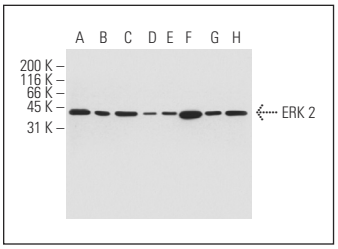
Molecular Weight of ERK 2: 42 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or ERK 2 (h2): 293T Lysate: sc-177196.

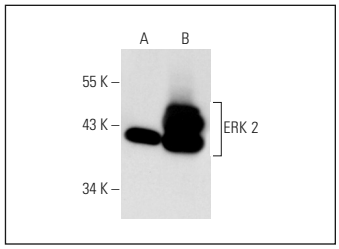
STORAGE

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

DATA



ERK 2 (12A4): sc-81457. Western blot analysis of ERK 2 expression in serum starved A-431 (**A**), A549 (**B**), SK-OV-3 (**C**), OVCAR-5 (**D**), HaCaT (**E**), PC-3 (**F**), HeLa (**G**) and Hep G2 (**H**) whole cell lysates.



ERK 2 (12A4): sc-81457. Western blot analysis of ERK 2 expression in non-transfected: sc-117752 (**A**) and human ERK 2 transfected: sc-177196 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Barabutis, N., et al. 2010. Growth hormone releasing hormone induces the expression of nitric oxide synthase. J. Cell. Mol. Med. 15: 1148-1155.
2. Wang, H.Y., et al. 2011. Repetitive transcranial magnetic stimulation enhances BDNF-TrkB signaling in both brain and lymphocyte. J. Neurosci. 31: 11044-11054.
3. Lim, S.T., et al. 2012. Nuclear-localized focal adhesion kinase regulates inflammatory VCAM-1 expression. J. Cell Biol. 197: 907-919.
4. Siejka, A., et al. 2014. The effect of LHRH antagonist cetrorelix in crossover conditioned media from epithelial (BPH-1) and stromal (WPMY-1) prostate cells. Horm. Metab. Res. 46: 21-26.
5. Kim, N.H., et al. 2016. The novel model peptide, αAL14, regulates angiogenesis by inhibiting VEGFR 2-mediated signaling in HUVECs. Int. J. Oncol. 49: 1457-1468.
6. Morel, C., et al. 2018. JIP1-mediated JNK activation negatively regulates synaptic plasticity and spatial memory. J. Neurosci. 38: 3708-3728.
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10. Kang, K., et al. 2020. 3-O-acetylrubianol C (3AR-C) induces RIPK1-dependent programmed cell death by selective inhibition of IKKβ. FASEB J. 34: 4369-4383.

RESEARCH USE

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