SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 2 (6G11): sc-81458

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.
3. Owaki, H., et al. 1992. Extracellular signal-regulated kinases in T cells: characterization of human ERK 1 and ERK 2 cDNAs. Biochem. Biophys. Res. Commun. 182: 1416-1422.
4. Haycock, J.W., et al. 1992. ERK 1 and ERK 2, two microtubule-associated protein 2 kinases, mediate the phosphorylation of tyrosine hydroxylase at Serine 31 *in situ*. Proc. Natl. Acad. Sci. USA 89: 2365-2369.
5. Khokhlatchev, A.V., et al. 1998. Phosphorylation of the MAP kinase ERK 2 promotes its homodimerization and nuclear translocation. Cell 93: 605-615.
6. Gutkind, J.S. 2000. Regulation of mitogen-activated protein kinase signaling networks by G protein-coupled receptors. Sci. STKE 2000: re1.

CHROMOSOMAL LOCATION

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

SOURCE

ERK 2 (6G11) is a mouse monoclonal antibody raised against the C-terminus 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.

STORAGE

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

APPLICATIONS

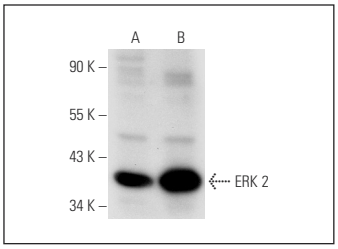
ERK 2 (6G11) is recommended for detection of ERK 2 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)]; non cross-reactive with ERK 1.

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.

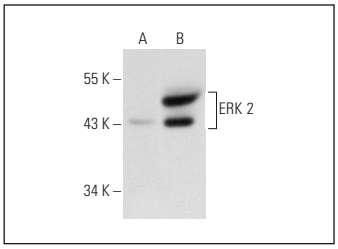
Molecular Weight of ERK 2: 42 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa whole cell lysate: sc-2200 or ERK 2 (h2): 293T Lysate: sc-177196.

DATA



ERK 2 (6G11): sc-81458. Western blot analysis of ERK 2 expression in 293T (**A**) and A-431 (**B**) whole cell lysates.



ERK 2 (6G11): sc-81458. 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. Peng, C., et al. 2009. Norcantharidin induces HT-29 colon cancer cell apoptosis through the αvβ6-extracellular signal-related kinase signaling pathway. Cancer Sci. 100: 2302-2308.
2. Valencia, T., et al. 2011. Role and expression of FRS2 and FRS3 in prostate cancer. BMC Cancer 11: 484.
3. Smith, J.S., et al. 2011. The role of endosomal escape and mitogen-activated protein kinases in adenoviral activation of the innate immune response. PLoS ONE 6: e26755.
4. Kachroo, N., et al. 2013. Evidence for downregulation of the negative regulator SPRED2 in clinical prostate cancer. Br. J. Cancer 108: 597-601.
5. Son, J. and Lee, S.Y. 2019. Ursonic acid exerts inhibitory effects on matrix metalloproteinases via ERK signaling pathway. Chem. Biol. Interact. 315: 108910.

RESEARCH USE

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

CONJUGATES

See **ERK 2 (D-2): sc-1647** for ERK 2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.