SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 2 (33): sc-136288

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 ERK1 and ERK2 requires phosphorylation by upstream kinases such as MAP kinase kinase (MEK), MEK kinase and Raf-1. ERK1 and ERK2 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 ERK2 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 (33) is a mouse monoclonal antibody raised against amino acids 219-358 of ERK 2 of rat origin.

PRODUCT

Each vial contains 50 µg IgG_{2b} in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

ERK 2 (33) 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), 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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.

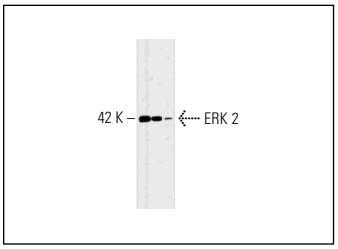
Molecular Weight of ERK 2: 42 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, DU 145 cell lysate: sc-2268 or rat pituitary gland extract: sc-364807.

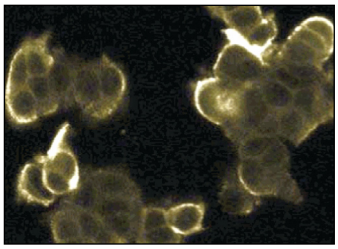
STORAGE

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

DATA



ERK 2 (33): sc-136288. Western blot analysis of ERK 2 expression in rat pituitary tissue extract.



ERK 2 (33): sc-136288. Immunofluorescence staining of MCF7 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Xiong, H.L., et al. 2015. MicroRNA-197 reverses the drug resistance of fluorouracil-induced SGC7901 cells by targeting mitogen-activated protein kinase 1. Mol. Med. Rep. 12: 5019-5025.
2. Wang, X., et al. 2018. MicroRNA-454 inhibits the malignant biological behaviours of gastric cancer cells by directly targeting mitogen-activated protein kinase 1. Oncol. Rep. 39: 1494-1504.
3. Yang, Y., et al. 2018. MicroRNA-145 regulates the proliferation, migration and invasion of human primary colon adenocarcinoma cells by targeting MAPK1. Int. J. Mol. Med. 42: 3171-3180.
4. Jia, Y., et al. 2019. Phosphorylation of 14-3-3ζ links YAP transcriptional activation to hypoxic glycolysis for tumorigenesis. Oncogenesis 8: 31.
5. Huang, C., et al. 2020. ERK1/2-Nanog signaling pathway enhances $CD44^+$ cancer stem-like cell phenotypes and epithelial-to-mesenchymal transition in head and neck squamous cell carcinomas. Cell Death Dis. 11: 266.
6. Wu, Q., et al. 2021. LncRNA SNHG16 facilitates nasopharyngeal carcinoma progression by acting as ceRNA to sponge miR-520a-3p and upregulate MAPK1 expression. Cancer Manag. Res. 13: 4103-4114.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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.