SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 2 (6H3): sc-81459

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 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. 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.

CHROMOSOMAL LOCATION

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

SOURCE

ERK 2 (6H3) is a mouse monoclonal antibody raised against the N-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.

APPLICATIONS

ERK 2 (6H3) 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)].

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.

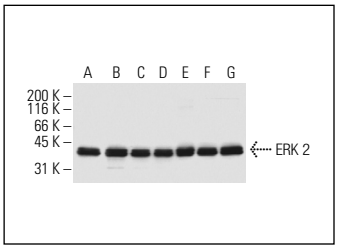
Molecular Weight of ERK 2: 42 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, SW480 cell lysate: sc-2219 or MCF7 whole cell lysate: sc-2206.

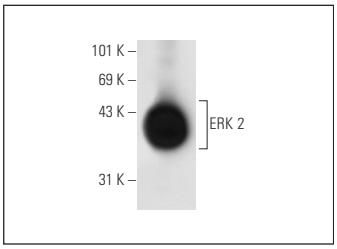
STORAGE

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

DATA



ERK 2 (6H3): sc-81459. Western blot analysis of ERK 2 expression in serum starved A-431 (**A**), SW480 (**B**), SW620 (**C**), HT29 (**D**), MCF7 (**E**), MDA-MB-231 (**F**) and T-47D (**G**) whole cell lysates.



ERK 2 (6H3): sc-81459. Western blot analysis of ERK 2 expression in rat hippocampus tissue extract.

SELECT PRODUCT CITATIONS

1. Meissner, J.D., et al. 2011. Extracellular signal-regulated kinase 1/2-mediated phosphorylation of p300 enhances myosin heavy chain I/β gene expression via acetylation of nuclear factor of activated T cells c1. Nucleic Acids Res. 39: 5907-5925.
2. Dadehbeigi, N. and Dickson, A.J. 2015. Chemical manipulation of the mTORC1 pathway in industrially relevant CHOK1 cells enhances production of therapeutic proteins. Biotechnol. J. 10: 1041-1050.
3. Li, W., et al. 2017. MicroRNA-329-3p targets MAPK1 to suppress cell proliferation, migration and invasion in cervical cancer. Oncol. Rep. 37: 2743-2750.
4. Hu, B., et al. 2018. MicroRNA-212 targets mitogen-activated protein kinase 1 to inhibit proliferation and invasion of prostate cancer cells. Oncol. Res. 26: 1093-1102.
5. Hussain, H., et al. 2018. A protein chimera strategy supports production of a model "difficult-to-express" recombinant target. FEBS Lett. 592: 2499-2511.
6. Wang, J., et al. 2019. MicroRNA-675 directly targets MAPK1 to suppress the oncogenicity of papillary thyroid cancer and is sponged by long non-coding RNA RMRP. Onco Targets Ther. 12: 7307-7321.
7. Torres, M. and Dickson, A.J. 2021. Overexpression of transcription factor BLIMP1/prdm1 leads to growth inhibition and enhanced secretory capacity in Chinese hamster ovary cells. Metab. Eng. 67: 237-249.
8. Hussain, H., et al. 2021. A comparative analysis of recombinant Fab and full-length antibody production in Chinese hamster ovary cells. Biotechnol. Bioeng. 118: 4815-4828.

RESEARCH USE

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