SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 1/2 (MK1): sc-135900

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 kinasekinase (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, MAPK1 (human) mapping to 22q11.21; Mapk3 (mouse) mapping to 7 F3, Mapk1 (mouse) mapping to 16 A3.

SOURCE

ERK 1/2 (MK1) is a mouse monoclonal antibody raised against amino acids 325-345 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.

APPLICATIONS

ERK 1/2 (MK1) is recommended for detection of ERK 1 and ERK 2 of mouse, rat, human and canine 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of ERK 1: 44 kDa.

Molecular Weight of ERK 2: 42 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, ERK 1 (m): 293T Lysate: sc-126806 or NIH/3T3 whole cell lysate: sc-2210.

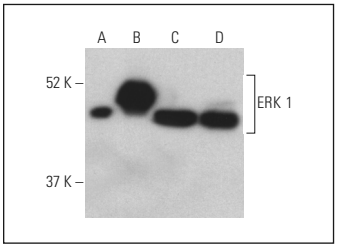
RESEARCH USE

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

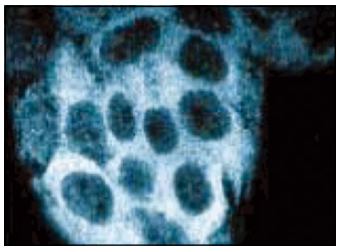
STORAGE

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

DATA



ERK 1/2 (MK1): sc-135900. Western blot analysis of ERK 1/2 expression in non-transfected 293T: sc-117752 (**A**), mouse ERK 1 transfected 293T: sc-126806 (**B**), A-431 (**C**) and NIH/3T3 (**D**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



ERK 1/2 (MK1): sc-135900. Immunofluorescence staining of A-431 cells showing cytoplasmic staining.

SELECT PRODUCT CITATIONS

1. Robinson, G.A. 1994. Role of fibulin-3 in lung cancer: *in vivo* and *in vitro* analyses. Mol. Brain Res. 24: 43-54.
2. Chin, H.K., et al. 2018. Kaempferol inhibits angiogenic ability by targeting VEGF receptor-2 and downregulating the PI3K/Akt, MEK and ERK pathways in VEGF-stimulated human umbilical vein endothelial cells. Oncol. Rep. 39: 2351-2357.
3. Maugeri, G., et al. 2019. Involvement of A3 adenosine receptor in neuroblastoma progression via modulation of the hypoxic/angiogenic pathway. J. Mol. Neurosci. 69: 166-176.
4. Che, D.N., et al. 2020. Luteolin suppresses IL-31 production in IL-33-stimulated mast cells through MAPK and NFκB signaling pathways. Int. Immunopharmacol. 83: 106403.
5. Kindlovits, R., et al. 2021. Molecular mechanisms underlying fructose-induced cardiovascular disease: exercise, metabolic pathways and microRNAs. Exp. Physiol. 106: 1224-1234.
6. Shen, X., et al. 2022. A regulatory role of Piezo1 in apoptosis of periodontal tissue and periodontal ligament fibroblasts during orthodontic tooth movement. Aust. Endod. J. 49: 228-237.
7. Son, C.O., et al. 2023. Sibjotang protects against cardiac hypertrophy *in vitro* and *in vivo*. Life 13: 2307.
8. Yu, L., et al. 2024. Co-targeting JAK1/STAT6/GAS6/TAM signaling improves chemotherapy efficacy in Ewing sarcoma. Nat. Commun. 15: 5292.

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.