SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 1 (E-12): sc-271291

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 1 gene maps to chromosome 16p11.2 and encodes a 379 amino acid protein that shares 83% sequence identity to ERK 2.

CHROMOSOMAL LOCATION

Genetic locus: MAPK3 (human) mapping to 16p11.2; Mapk3 (mouse) mapping to 7 F3.

SOURCE

ERK 1 (E-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 291-335 within subdomain XI of ERK 1 of rat origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-271291 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

ERK 1 (E-12) is recommended for detection of ERK 1 p44 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ERK 1 (E-12) is also recommended for detection of ERK 1 p44 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for ERK 1 siRNA (h): sc-29307, ERK 1 siRNA (m): sc-29308, ERK 1 siRNA (r): sc-156030, ERK 1 shRNA Plasmid (h): sc-29307-SH, ERK 1 shRNA Plasmid (m): sc-29308-SH, ERK 1 shRNA Plasmid (r): sc-156030-SH, ERK 1 shRNA (h) Lentiviral Particles: sc-29307-V, ERK 1 shRNA (m) Lentiviral Particles: sc-29308-V and ERK 1 shRNA (r) Lentiviral Particles: sc-156030-V.

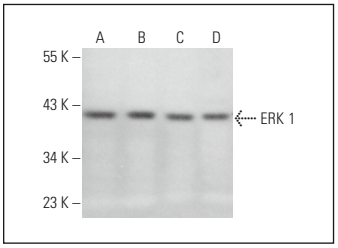
Molecular Weight of ERK 1: 44 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, HeLa whole cell lysate: sc-2200 or KNRK whole cell lysate: sc-2214.

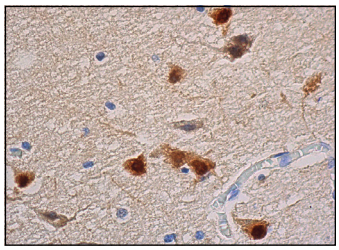
STORAGE

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

DATA



ERK 1 (E-12): sc-271291. Western blot analysis of ERK 1 expression in HeLa (**A**), MCF7 (**B**), THP-1 (**C**) and KNRK (**D**) whole cell lysates.



ERK 1 (E-12): sc-271291. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic and nuclear staining of neuronal cells.

SELECT PRODUCT CITATIONS

1. Shi, Z., et al. 2010. The neuroprotective effect of Batch-2, an aqueous extract from cat's claw *(Uncaria tomentosa)* on 6-OHDA-induced SH-SY5Y cell damage. Prog. Biochem. Biophys. 37: 769-778.
2. Zhu, H., et al. 2019. Parvifoline AA promotes susceptibility of hepatocarcinoma to natural killer cell-mediated cytolysis by targeting peroxiredoxin. Cell Chem. Biol. 26: 1122-1132.e6.
3. Liu, G., et al. 2020. M2 macrophages promote HCC cells invasion and migration via miR-149-5p/MMP9 signaling. J. Cancer 11: 1277-1287.
4. Wahedi, H.M., et al. 2020. NED416, a novel synthetic Sirt1 activator, promotes cutaneous wound healing via the MAPK/Rho pathway. Int. J. Mol. Med. 46: 149-158.
5. Lillo Urzúa, P., et al. 2020. Loss of caveolin-1 is associated with a decrease in β cell death in mice on a high fat diet. Int. J. Mol. Sci. 21: 5225.
6. Qin, S., et al. 2020. Small-molecule inhibitor of 8-oxoguanine DNA glycosylase 1 regulates inflammatory responses during pseudomonas aeruginosa infection. J. Immunol. 205: 2231-2242.
7. Muñoz, J.P., et al. 2022. Glyphosate mimics 17β-estradiol effects promoting estrogen receptor alpha activity in breast cancer cells. Chemosphere 313: 137201.
8. Muñoz, J.P. and Calaf, G.M. 2023. Acetylcholine, another factor in breast cancer. Biology 12: 1418.

RESEARCH USE

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

CONJUGATES

See **ERK 1 (G-8): sc-271269** for ERK 1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.