SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 2 (K-23): sc-153

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.

CHROMOSOMAL LOCATION

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

SOURCE

ERK 2 (K-23) is an affinity purified rabbit polyclonal antibody mapping within subdomain XI of rat ERK 2-encoded MAP kinase p42.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-153 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as phycoerythrin (sc-153 PE) conjugate for flow cytometry, 100 tests.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

ERK 2 (K-23) is recommended for detection of ERK 2 p42 and, to a lesser extent, ERK 1 p44 of mouse, rat, human, chicken, frog, *Drosophila melanogaster* and zebrafish 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), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ERK 2 (K-23) is also recommended for detection of ERK 2 p42 and, to a lesser extent, ERK 1 p44 in additional species, including equine, canine, bovine, porcine and avian.

Molecular Weight of ERK 2: 42 kDa.

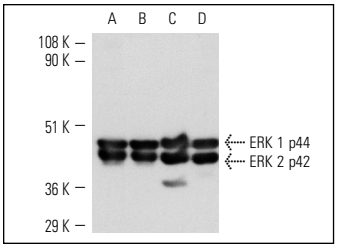
STORAGE

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

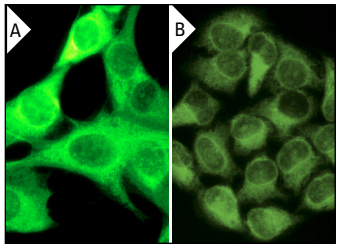
RESEARCH USE

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

DATA



ERK 2 (K-23): sc-153. Western blot analysis of ERK 1 and ERK 2 expression in HeLa (**A**), A-431 (**B**), KNRK (**C**) and NIH/3T3 (**D**) whole cell lysates.



ERK 2 (K-23): sc-153. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization using indirect FITC (**A**) staining and HeLa cells using direct Alexa Fluor® 488 (**B**) staining.

SELECT PRODUCT CITATIONS

1. Hazan-Halevy, I., et al. 2000. The requirement of both extracellular regulated kinase and p38 mitogen-activated protein kinase for stimulation of cytosolic phospholipase A_2 activity by either Fc γ RIIA or Fc γ RIIIB in human neutrophils. A possible role for PYK2 but not for the GRB2-Sos-Shc complex. J. Biol. Chem. 275: 12416-12423.
2. Ko, J.C., et al. 2011. Modulation of Rad51, ERCC1, and thymidine phosphorylase by emodin result in synergistic cytotoxic effect in combination with capecitabine. Biochem. Pharmacol. 81: 680-690.
3. Nuttinck, F., et al. 2011. PTGS2-related PGE2 affects oocyte MAPK phosphorylation and meiosis progression in cattle: late effects on early embryonic development. Biol. Reprod. 84: 1248-1257.
4. Tsai, M.S., et al. 2011. Synergistic effect of curcumin and cisplatin via down-regulation of thymidine phosphorylase and excision repair cross-complementary 1 (ERCC1). Mol. Pharmacol. 80: 136-146.
5. Fessing, M.Y., et al. 2011. p63 regulates Satb1 to control tissue-specific chromatin remodeling during development of the epidermis. J. Cell Biol. 194: 825-839.
6. Zhang, Q., et al. 2011. Activation of the Ras/Raf/MEK pathway facilitates HCV replication via attenuation of the IFN-JAK-STAT pathway. J. Virol. 86: 1544-1554.
7. Chen, S.T., et al. 2012. Recombinant MPT83 derived from Mycobacterium tuberculosis induces cytokine production and upregulates the function of mouse macrophages through TLR2. J. Immunol. 188: 668-677.
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9. Weng, S.H., et al. 2012. Enhancement of mitomycin C-induced cytotoxicity by curcumin results from down-regulation of MKK1/2-ERK1/2-mediated thymidine phosphorylase expression. Basic Clin. Pharmacol. Toxicol. 110: 298-306.