

ERK 5 (12F2): sc-81460

BACKGROUND

The activation of signal transduction pathways by growth factors, hormones and neurotransmitters is mediated through two closely related MAP kinases, p44 and p42, designated extracellular-signal related kinase 1 (ERK 1) and ERK 2, respectively. ERK proteins are regulated by dual phosphorylation at specific tyrosine and threonine sites mapping within a characteristic Thr-Glu-Tyr motif. MAP kinases require dual phosphorylation on Threonine 218 and Tyrosine 220 residues in order to gain enzymatic activity. In response to activation, MAP kinases phosphorylate downstream components on serine and threonine. Upstream MAP kinase regulators include MAP kinase kinase (MEK), MEK kinase and Raf-1. The ERK family has three additional members: ERK 3, ERK 5 and ERK 6.

REFERENCES

- 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.
- Boulton, T.G., et al. 1991. Purification and properties of ERK 1, an Insulin-stimulated MAP2 protein kinase. *Biochemistry* 30: 278-286.
- Payne, D.M., et al. 1991. Identification of the regulatory phosphorylation sites in pp42/mitogen-activated protein kinase (MAP kinase). *EMBO J.* 10: 885-892.
- Haycock, J.W., et al. 1992. ERK 1 and ERK 2, two microtubule-associated protein 2 kinases, mediate the phosphorylation of tyrosine hydroxylase at Serine 31 *in situ*. *Proc. Natl. Acad. Sci. USA* 89: 2365-2369.
- Crews, C.M., et al. 1992. Purification of a murine protein-tyrosine/threonine kinase that phosphorylates and activates the ERK 1 gene product: relationship to the fission yeast *byr1* gene product. *Proc. Natl. Acad. Sci. USA* 89: 8205-8209.
- Crews, C.M., et al. 1992. The primary structure of MEK, a protein kinase that phosphorylates the ERK gene product. *Science* 258: 478-480.
- Zhou, G., et al. 1995. Components of a new human protein kinase signal transduction pathway. *J. Biol. Chem.* 270: 12665-12669.
- Lechner, C., et al. 1996. ERK 6, a mitogen-activated protein kinase involved in C2C12 myoblast differentiation. *Proc. Natl. Acad. Sci. USA* 93: 4355-4359.

CHROMOSOMAL LOCATION

Genetic locus: MAPK7 (human) mapping to 17p11.2; Mapk7 (mouse) mapping to 11 B2.

SOURCE

ERK 5 (12F2) is a mouse monoclonal antibody raised against the N-terminus of ERK 5 of human origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

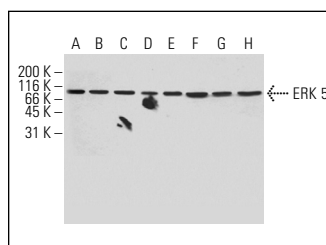
ERK 5 (12F2) is recommended for detection of ERK 5 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for ERK 5 siRNA (h): sc-35339, ERK 5 siRNA (m): sc-35340, ERK 5 shRNA Plasmid (h): sc-35339-SH, ERK 5 shRNA Plasmid (m): sc-35340-SH, ERK 5 shRNA (h) Lentiviral Particles: sc-35339-V and ERK 5 shRNA (m) Lentiviral Particles: sc-35340-V.

Molecular Weight of ERK 5: 123 kDa.

Positive Controls: PC-3 cell lysate: sc-2220, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

DATA



ERK 5 (12F2): sc-81460. Western blot analysis of ERK 5 expression in serum starved A-431 (A), A549 (B), SK-OV-3 (C), OVCAR-5 (D), HaCaT (E), PC-3 (F), HeLa (G) and Hep G2 (H) whole cell lysates.

SELECT PRODUCT CITATIONS

- Nakamura, K. and Johnson, G.L. 2010. Activity assays for extracellular signal-regulated kinase 5. *Methods Mol. Biol.* 661: 91-106.
- Yoo, S.K., et al. 2011. Lyn is a redox sensor that mediates leukocyte wound attraction *in vivo*. *Nature* 480: 109-112.
- Chen, W.Y., et al. 2019. miR-143 acts as a novel big mitogen-activated protein kinase 1 suppressor and may inhibit invasion of glioma. *Oncol. Rep.* 42: 1194-1204.

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.

PROTOCOLS

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