

p-ERK 5 (36.T218/Y220): sc-135761

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

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. Boulton, T.G., et al. 1991. Purification and properties of ERK 1, an Insulin-stimulated MAP-2 protein kinase. *Biochemistry* 30: 278-286.
3. 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.
4. 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.
5. Crews, C.M. and Erikson, R.L. 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.

CHROMOSOMAL LOCATION

Genetic locus: MAPK7 (human) mapping to 17p11.2.

SOURCE

p-ERK 5 (36.T218/Y220) is a mouse monoclonal antibody raised against a short amino acid sequence containing Thr 218 and Tyr 220 dually phosphorylated ERK 5 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-ERK 5 (36.T218/Y220) is available conjugated to agarose (sc-135761 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; and to HRP (sc-135761 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

STORAGE

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

APPLICATIONS

p-ERK 5 (36.T218/Y220) is recommended for detection of Thr 218 and Tyr 220 dually phosphorylated ERK 5 of human 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)], 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).

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

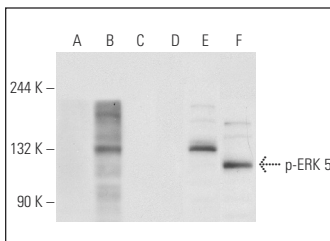
Molecular Weight of p-ERK 5: 123 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

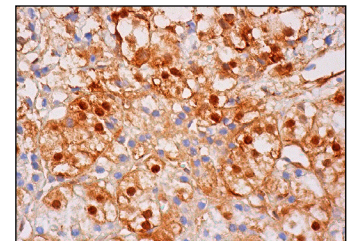
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Western blot analysis of ERK 5 phosphorylation in untreated (A, D), EGF treated (B, E) and EGF and lambda protein phosphatase treated (C, F) HeLa whole cell lysates. Antibodies tested include p-ERK 5 (36.T218/Y220): sc-135761 (A, B, C) and ERK 5 (C-20)-R: sc-1284-R (D, E, F).



p-ERK 5 (36.T218/Y220): sc-135761. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing nuclear and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Gavine, P.R., et al. 2015. Identification and validation of dysregulated MAPK7 (ERK5) as a novel oncogenic target in squamous cell lung and esophageal carcinoma. *BMC Cancer* 15: 454.
2. Miao, W. and Wang, Y. 2019. Quantitative interrogation of the human kinome perturbed by two BRAF inhibitors. *J. Proteome Res.* E-published.

RESEARCH USE

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