

p-ERK (E-4): sc-7383

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. Phosphorylation at both the Thr and Tyr residues is required for full enzymatic activation. 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., 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 MAP2 protein kinase. *Biochemistry* 30: 278-286.

CHROMOSOMAL LOCATION

Genetic locus: MAPK3 (human) mapping to 16p11.2, MAPK1 (human) mapping to 22q11.21; Mapk 3 (mouse) mapping to 7 F3, Mapk1 (mouse) mapping to 16 A3.

SOURCE

p-ERK (E-4) is a mouse monoclonal antibody epitope corresponding to a sequence containing Tyr 204 phosphorylated ERK of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-ERK (E-4) is available conjugated to agarose (sc-7383 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-7383 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-7383 PE), fluorescein (sc-7383 FITC), Alexa Fluor® 488 (sc-7383 AF488), Alexa Fluor® 546 (sc-7383 AF546), Alexa Fluor® 594 (sc-7383 AF594) or Alexa Fluor® 647 (sc-7383 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-7383 AF680) or Alexa Fluor® 790 (sc-7383 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, p-ERK (E-4) is available conjugated to biotin (sc-7383 B), 200 µg/ml, for WB, IHC(P) and ELISA; and to either TRITC (sc-7383 TRITC), 200 µg/ml, PerCP (sc-7383 PerCP) or Alexa Fluor® 405 (sc-7383 AF405), 100 tests in 2 ml, for IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-7383 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

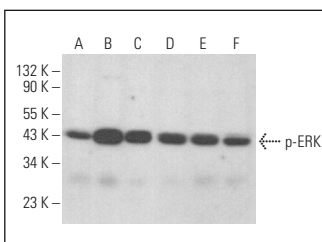
p-ERK (E-4) is recommended for detection of ERK 1 phosphorylated at Tyr 204 and correspondingly phosphorylated ERK 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

p-ERK (E-4) is also recommended for detection of correspondingly phosphorylated ERK 1 and ERK 2 in additional species, including equine, canine, bovine, porcine and avian.

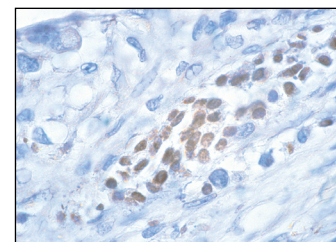
Molecular Weight of ERK 1/ERK 2: 44/42 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or Jurkat whole cell lysate: sc-2204.

DATA



p-ERK (E-4): sc-7383. Western blot analysis of ERK phosphorylation in HeLa (A), A-431 (B), SK-MEL-24 (C), Jurkat (D), K-562 (E) and NIH/3T3 (F) whole cell lysates.



p-ERK (E-4): sc-7383. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing nuclear localization of activated ERK.

SELECT PRODUCT CITATIONS

1. Davis, E.A. and Morris, D.J. 1991. Medicinal uses of licorice through the millennia: the good and plenty of it. *Mol. Cell. Endocrinol.* 78: 1-6.
2. Echeverria, P.C., et al. 2019. The sensitivity to Hsp90 inhibitors of both normal and oncogenically transformed cells is determined by the equilibrium between cellular quiescence and activity. *PLoS ONE* 14: e0208287.
3. Lin, W.W., et al. 2020. Neuregulin 1 enhances cell adhesion molecule L1 like expression levels and promotes malignancy in human glioma. *Oncol. Lett.* 20: 326-336.
4. Knudsen, E.S., et al. 2021. Targeting dual signalling pathways in concert with immune checkpoints for the treatment of pancreatic cancer. *Gut* 70: 127-138.
5. Cai, M., et al. 2022. Baculoviral inhibitor of apoptosis protein repeat-containing protein 3 delays early Wallerian degeneration after sciatic nerve injury. *Neural Regen. Res.* 17: 845-853.

RESEARCH USE

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

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