SANTA CRUZ BIOTECHNOLOGY, INC.

p-ERK (Tyr 204): sc-7976

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

SOURCE

p-ERK (Tyr 204) is available as either goat (sc-7976) or rabbit (sc-7976-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Tyr 204 phosphorylated ERK of human origin.

PRODUCT

Each vial contains either 100 µg (sc-7976) or 200 µg (sc-7976-R) IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-7976 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as phycoerythrin (sc-7976 PE) conjugate for flow cytometry, 100 tests.

APPLICATIONS

p-ERK (Tyr 204) is recommended for detection of Tyr 204 phosphorylated ERK of mouse, rat, human, *Drosophila melanogaster, Xenopus laevis,* zebrafish and *Caenorhabditis elegans* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), mmunoprecipitation [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 (Tyr 204) is also recommended for detection of correspondingly phosphorylated ERK in additional species, including equine, canine, bovine, porcine and avian.

Molecular Weight of p-ERK 1: 44 kDa.

Molecular Weight of p-ERK 2: 42 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, Jurkat + PMA cell lysate: sc-24718 or HeLa whole cell lysate: sc-2200.

STORAGE

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

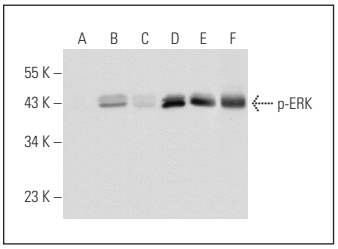
PROTOCOLS

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

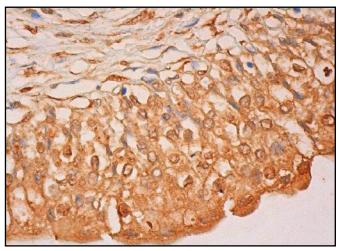
RESEARCH USE

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

DATA



Western blot analysis of ERK phosphorylation in untreated (**A**,**D**), PMA treated (**B**,**E**) and PMA and lambda protein phosphatase treated (**C**,**F**) Jurkat whole cell lysates. Antibodies tested include p-ERK (Tyr 204)-R: sc-7976-R (**A**,**B**,**C**) and ERK 2 (K-23): sc-153 (**D**,**E**,**F**).



p-ERK (Tyr 204): sc-7976. Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing nuclear and cytoplasmic staining of urothelial cells.

SELECT PRODUCT CITATIONS

1. Troussard, A., et al. 1999. Cell-extracellular matrix interactions stimulate the AP-1 transcription factor in an integrin-linked kinase- and glycogen synthase kinase 3-dependent manner. Mol. Cell. Biol. 19: 7420-7427.
2. Korkmaz, B., et al. 2011. Activation of MEK1/ERK1/2/iNOS/sGC/PKG pathway associated with peroxynitrite formation contributes to hypotension and vascular hyporeactivity in endotoxemic rats. Nitric Oxide 24: 160-172.
3. Saavedra, A., et al. 2011. Striatal-enriched protein tyrosine phosphatase expression and activity in Huntington's disease: a STEP in the resistance to excitotoxicity. J. Neurosci. 31: 8150-8162.
4. Nagel, J.M., et al. 2011. Dietary walnuts inhibit colorectal cancer growth in mice by suppressing angiogenesis. Nutrition 28: 67-75.
5. Liu, S.G., et al. 2011. Atypical protein kinase Cι (PKCι) promotes metastasis of esophageal squamous cell carcinoma by enhancing resistance to Anoikis via PKCι-SKP2-AKT pathway. Mol. Cancer Res. 9: 390-402.
6. Neasta, J., et al. 2012. Direct interaction between scaffolding proteins RACK1 and 14-3-3ζ regulates brain-derived neurotrophic factor (BDNF) transcription. J. Biol. Chem. 287: 322-336.
7. Jang, J.Y., et al. 2012. Aqueous fraction from *Cuscuta japonica* seed suppresses melanin synthesis through inhibition of the p38 mitogen-activated protein kinase signaling pathway in B16F10 cells. J. Ethnopharmacol. 141: 338-344.
8. Krepler, C., et al. 2013. The novel SMAC mimetic birinapant exhibits potent activity against human melanoma cells. Clin. Cancer Res. 19: 1784-1794.