SANTA CRUZ BIOTECHNOLOGY, INC.

p-ERK 1/2 (Thr 177/Thr 160)-R: sc-23759-R

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 Tyrosine 204 and 187 and Threonine 177 and 160 residues mapping within a characteristic Thr-Glu-Tyr motif. Phosphorylation at both the Threonine 202 and Tyrosine 204 residues of ERK1 and Threonine 185 and Tyrosine 187 residues of ERK2 is required for full enzymatic activation. The structural consequences of dual-phosphorylation in the ERK2 include active site closure, alignment of key catalytic residues that interact with ATP, and remodeling of the activation loop. 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.

CHROMOSOMAL LOCATION

Genetic locus: MAPK3 (human) mapping to 16p11.2, MAPK1 (human) mapping to 22q11.21; Mapk3 (mouse) mapping to 7 F3, Mapk1 (mouse) mapping to 16 A3.

SOURCE

p-ERK 1/2 (Thr 177 / Thr 160)-R is a rabbit polyclonal antibody raised against a short amino acid sequence containing Thr 177 and Thr 160 phosphorylated ERK 2 of human origin.

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-23759 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-ERK 1/2 (Thr 177/Thr 160)-R is recommended for detection of Thr 177 and Thr 160 dually phosphorylated ERK 1 and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of p-ERK 1: 44 kDa.

Molecular Weight of p-ERK 2: 42 kDa.

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

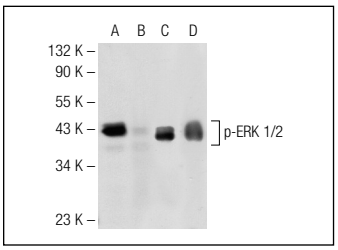
STORAGE

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

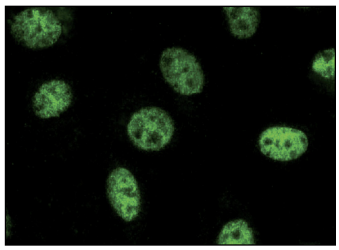
RESEARCH USE

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

DATA



Western blot analysis of ERK 1/2 phosphorylation in untreated (**A**, **C**), and lambda protein phosphatase (sc-200312A) treated (**B**, **D**) HeLa whole cell lysates. Antibodies tested include p-ERK 1/2 (Thr 177/Thr 160)-R: sc-23759-R (**A**, **B**) and ERK 2 (K-23): sc-153 (**C**, **D**).



p-ERK 1/2 (Thr 177/Thr 160)-R: sc-23759-R. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing nuclear localization.

SELECT PRODUCT CITATIONS

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3. Zhang, Q.G., et al. 2010. Positive modulation of AMPA receptors prevents downregulation of GluR2 expression and activates the Lyn-ERK1/2-CREB signaling in rat brain ischemia. Hippocampus 20: 65-77.
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5. Fuentes, E.N., et al. 2011. IGF-I/PI3K/Akt and IGF-I/MAPK/ERK pathways *in vivo* in skeletal muscle are regulated by nutrition and contribute to somatic growth in the fine flounder. Am. J. Physiol. Regul. Integr. Comp. Physiol. 300: R1532-R1542.
6. Westmark, C.J., et al. 2011. Reversal of fragile X phenotypes by manipulation of AβPP/Aβ levels in Fmr1KO mice. PLoS ONE 6: e26549.
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9. Sun, Y., et al. 2013. Wogonoside induces autophagy in MDA-MB-231 cells by regulating MAPK-mTOR pathway. Food Chem. Toxicol. 51: 53-60.
10. Dou, X., et al. 2013. Mitogen-activated protein kinase modulates ethanol inhibition of cell adhesion mediated by the L1 neural cell adhesion molecule. Proc. Natl. Acad. Sci. USA 110: 5683-5688.