SANTA CRUZ BIOTECHNOLOGY, INC.

p-ERK 1/2 (Thr 202/Tyr 204): sc-16982

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 202/Tyr 204) is available as either goat (sc-16982) or rabbit (sc-16982-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Thr 202 and Tyr 204 dually phosphorylated ERK 1 of human origin.

PRODUCT

Each vial contains either 200 µg (sc-16982) or 100 µg (sc-16982-R) IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16982 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-ERK 1/2 (Thr 202/Tyr 204) is recommended for detection of Thr 202 and Tyr 204 phosphorylated ERK 1 and Thr 185 and Tyr 187 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).

Molecular Weight of p-ERK 1: 44 kDa.

Molecular Weight of p-ERK 2: 42 kDa.

Positive Controls: HeLa + UV cell lysate: sc-2221, HeLa + TNFα cell lysate: sc-2228 or HeLa whole cell lysate: sc-2200.

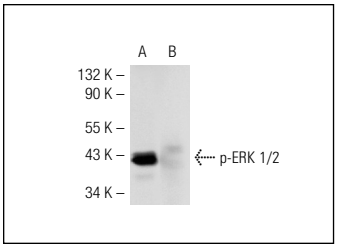
STORAGE

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

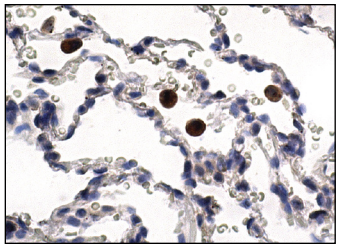
RESEARCH USE

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

DATA



p-ERK 1/2 (Thr 202/Tyr 204)-R: sc-16982-R. Western blot analysis of ERK 1/2 phosphorylation in untreated (**A**) and lambda protein phosphatase treated (**B**) Hela whole cell lysates.



p-ERK 1/2 (Thr 202/Tyr 204)-R: sc-16982-R. Immunoperoxidase staining of formalin fixed, paraffin-embedded human lung tissue showing cytoplasmic staining of macrophages.

SELECT PRODUCT CITATIONS

1. Xia, W., et al. 2002. Anti-tumor activity of GW572016: a dual tyrosine kinase inhibitor blocks EGF activation of EGFR/Erb B-2 and downstream ERK 1/2 and AKT pathways. Oncogene 21: 6255-6263.
2. Miah, S., et al. 2012. Constitutive activation of breast tumor kinase accelerates cell migration and tumor growth *in vivo*. Oncogenesis 1: e11.
3. Ha, S.K., et al. 2012. Narirutin fraction from citrus peels attenuates LPS-stimulated inflammatory response through inhibition of NFκB and MAPKs activation. Food Chem. Toxicol. 50: 3498-3504.
4. El Gaamouch, F., et al. 2012. Interaction between αCaMKII and GluN2B controls ERK-dependent plasticity. J. Neurosci. 32: 10767-10779.
5. Melnick, M., et al. 2012. Human cytomegalovirus and mucoepidermoid carcinoma of salivary glands: cell-specific localization of active viral and oncogenic signaling proteins is confirmatory of a causal relationship. Exp. Mol. Pathol. 92: 118-125.
6. Wen, K.C., et al. 2012. *Ixora parviflora* protects against UVB-induced photoaging by inhibiting the expression of MMPs, MAP kinases, and COX-2 and by promoting type I procollagen synthesis. Evid. Based Complement. Alternat. Med. 2012: 417346.
7. Guo, W., et al. 2013. Aberrant methylation and loss expression of RKIP is associated with tumor progression and poor prognosis in gastric cardia adenocarcinoma. Clin. Exp. Metastasis 30: 265-275.
8. Chiang, H.M., et al. 2013. Neonauclea reticulata (Havil.) merr stimulates skin regeneration after UVB exposure via ROS scavenging and modulation of the MAPK/MMPs/collagen pathway. Evid. Based Complement. Alternat. Med. 2013: 324864.