SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 5 (H-300): sc-5626

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.

CHROMOSOMAL LOCATION

Genetic locus: MAPK7 (human) mapping to 17p11.2; Mapk7 (mouse) mapping to 11 B2.

SOURCE

ERK 5 (H-300) is a rabbit polyclonal antibody raised against amino acids 516-815 mapping at the C-terminus of ERK 5 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.

Available as phycoerythrin conjugate for flow cytometry, sc-5626 PE, 100 tests.

APPLICATIONS

ERK 5 (H-300) is recommended for detection of ERK 5 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for ERK 5 siRNA (h): sc-35339, ERK 5 siRNA (m): sc-35340, ERK 5 shRNA Plasmid (h): sc-35339-SH, ERK 5 shRNA Plasmid (m): sc-35340-SH, ERK 5 shRNA (h) Lentiviral Particles: sc-35339-V and ERK 5 shRNA (m) Lentiviral Particles: sc-35340-V.

Molecular Weight of ERK 5: 123 kDa.

Positive Controls: Caki-1 cell lysate: sc-2224, HeLa whole cell lysate: sc-2200 or A-10 cell lysate: sc-3806.

STORAGE

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

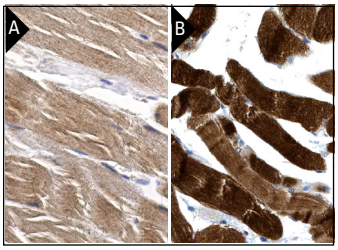
PROTOCOLS

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

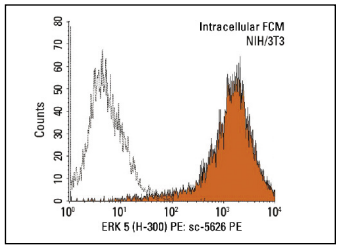
RESEARCH USE

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

DATA



ERK 5 (H-300): sc-5626. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes. Kindly provided by The Swedish Human Protein Atlas (HPA) program (**B**).



ERK 5 (H-300) PE: sc-5626 PE. Intracellular FCM analysis of fixed and permeabilized NIH/3T3 cells. Black line histogram represents the isotype control, normal rabbit IgG: sc-3871.

SELECT PRODUCT CITATIONS

1. Dumitru, C.D., et al. 2000. TNF-α induction by LPS is regulated posttranscriptionally via a Tpl2/ERK-dependent pathway. Cell 103: 1071-1083.
2. Jiang, J., et al. 2005. Epidermal growth factor-independent transformation of Ba/F3 cells with cancer-derived epidermal growth factor receptor mutants induces gefitinib-sensitive cell cycle progression. Cancer Res. 65: 8968-8974.
3. Wang, R.M., et al. 2005. Activation of extracellular signal-regulated kinase 5 may play a neuroprotective role in hippocampal CA3/DG region after cerebral ischemia. J. Neurosci. Res. 80: 391-399.
4. Truman, A.W., et al. 2006. Expressed in the yeast *Saccharomyces cerevisiae,* human ERK5 is a client of the Hsp90 chaperone that complements loss of the Slt2p (Mpk1p) cell integrity stress-activated protein kinase. Eukaryot. Cell 5: 1914-1924.
5. Wang, R.M., et al. 2006. Preconditioning-induced activation of ERK5 is dependent on moderate Ca^{2+} influx via NMDA receptors and contributes to ischemic tolerance in the hippocampal CA1 region of rats. Life Sci. 79: 1839-1846.
6. Nakamura, K. and Johnson, G.L. 2010. Activity assays for extracellular signal-regulated kinase 5. Methods Mol. Biol. 661: 91-106.
7. Erazo, T., et al. 2013. Canonical and kinase activity-independent mechanisms for extracellular signal-regulated kinase 5 (ERK5) nuclear translocation require dissociation of Hsp90 from the ERK5-Cdc37 complex. Mol. Cell. Biol. 33: 1671-1686.