

ERK 4 (N-20): sc-68169

BACKGROUND

Mitogen-activated protein kinases (MAPKs) are involved in signal transducing pathways which regulate cell growth, differentiation, migration and apoptosis. The MAPK family is thought to be activated by growth factors and other external stimuli via phosphorylation of both threonine and tyrosine. Once activated, the MAPKs move into the nucleus where they phosphorylate nuclear targets. ERK 4 (extracellular signal-regulated kinase 4) is also known as mitogen-activated protein kinase 4, MAP kinase isoform p63 or p63-MAPK, and is a 587 amino acid protein. ERK 4 and ERK 3 differ from the rest of the MAPK family in that they have a phospho-acceptor site in their activation loop S-E-G motif. ERK 4 is expressed in high quantities in heart and brain. ERK 4 is thought to phosphorylate MAP-2 (microtubule-associated protein 2), an association that may trigger cellular division. Upregulation of ERK 4 is found in tumors and is associated with cancer.

REFERENCES

- Li, L., et al. 1994. Genomic loci of human mitogen-activated protein kinases. *Oncogene* 9: 647-649.
- Peng, X., et al. 1996. Tyrosine phosphorylation of extracellular signal-regulated protein kinase 4 in response to growth factors. *J. Neurochem.* 66: 1191-1197.
- García, J.I., et al. 1996. Isolation of a cDNA encoding the rat MAP-kinase homolog of human p63mapk. *Mamm. Genome* 7: 810-814.
- Sánchez, C., et al. 2000. Phosphorylation of microtubule-associated protein 2 (MAP2) and its relevance for the regulation of the neuronal cytoskeleton function. *Prog. Neurobiol.* 61: 133-168.
- Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 176949. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Goetze, B., et al. 2004. Chemically controlled formation of a DNA/calcium phosphate coprecipitate: application for transfection of mature hippocampal neurons. *J. Neurobiol.* 60: 517-525.

CHROMOSOMAL LOCATION

Genetic locus: MAPK4 (human) mapping to 18q21.1; Mapk4 (mouse) mapping to 18 E2.

SOURCE

ERK 4 (N-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the N-terminus of ERK 4 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-68169 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

ERK 4 (N-20) is recommended for detection of ERK 4 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).

ERK 4 (N-20) is also recommended for detection of ERK 4 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for ERK 4 siRNA (h): sc-62280, ERK 4 siRNA (m): sc-62281, ERK 4 shRNA Plasmid (h): sc-62280-SH, ERK 4 shRNA Plasmid (m): sc-62281-SH, ERK 4 shRNA (h) Lentiviral Particles: sc-62280-V and ERK 4 shRNA (m) Lentiviral Particles: sc-62281-V.

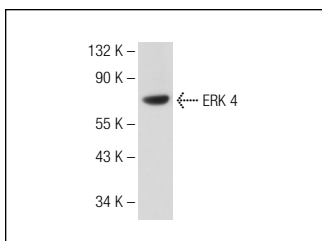
Molecular Weight of ERK 4: 65 kDa.

Positive Controls: mouse heart extract: sc-2254.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



ERK 4 (N-20): sc-68169. Western blot analysis of ERK 4 expression in mouse heart tissue extract.

SELECT PRODUCT CITATIONS

- Teng, L., et al. 2012. Divergent effects of p47^{phox} phosphorylation at S303-4 or S379 on tumor necrosis factor- α signaling via TRAF4 and MAPK in endothelial cells. *Arterioscler. Thromb. Vasc. Biol.* 32: 1488-1496.
- Grau, L., et al. 2013. A quantitative proteomic analysis uncovers the relevance of CUL3 in bladder cancer aggressiveness. *PLoS ONE* 8: e53328.

STORAGE

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