

ERK 2 (C-8): sc-271458

BACKGROUND

Mitogen-activated protein kinase (MAPK) signaling pathways involve two closely related MAP kinases, known as extracellular-signal-related kinase 1 (ERK 1, p44) and 2 (ERK 2, p42). Growth factors, steroid hormones, G protein-coupled receptor ligands and neurotransmitters can initiate MAPK signaling pathways. Activation of ERK 1 and ERK 2 requires phosphorylation by upstream kinases such as MAP kinase kinase (MEK), MEK kinase and Raf-1. ERK 1 and ERK 2 phosphorylation can occur at specific tyrosine and threonine sites mapping within consensus motifs that include the threonine-glutamate-tyrosine motif. ERK activation leads to dimerization with other ERKs and subsequent localization to the nucleus. Active ERK dimers phosphorylate serine and threonine residues on nuclear proteins and influence a host of responses that include proliferation, differentiation, transcription regulation and development. The human ERK 2 gene maps to chromosome 22q11.21 and encodes a 360 amino acid protein.

REFERENCES

1. Boulton, T.G., et al. 1991. ERKs: a family of protein-serine/threonine kinases that are activated and tyrosine phosphorylated in response to Insulin and NGF. *Cell* 65: 663-675.
2. Owaki, H., et al. 1992. Extracellular signal-regulated kinases in T cells: characterization of human ERK1 and ERK2 cDNAs. *Biochem. Biophys. Res. Commun.* 182: 1416-1422.
3. Haycock, J.W., et al. 1992. ERK 1 and ERK 2, two microtubule-associated protein 2 kinases, mediate the phosphorylation of tyrosine hydroxylase at serine-31 *in situ*. *Proc. Natl. Acad. Sci. USA* 89: 2365-2369.

CHROMOSOMAL LOCATION

Genetic locus: MAPK1 (human) mapping to 22q11.21; Mapk1 (mouse) mapping to 16 A3.

SOURCE

ERK 2 (C-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 276-333 within subdomain XI of rat ERK 2-encoded MAP kinase p42.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-271458 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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.

APPLICATIONS

ERK 2 (C-8) is recommended for detection of ERK 2 p42 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

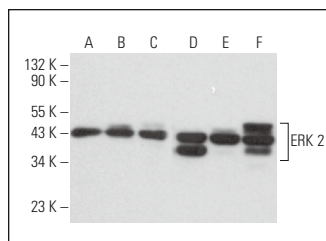
ERK 2 (C-8) is also recommended for detection of ERK 2 p42 in additional species, including canine, bovine, porcine and avian.

Suitable for use as control antibody for ERK 2 siRNA (h): sc-35335, ERK 2 siRNA (m): sc-35336, ERK 2 siRNA (r): sc-156031, ERK 2 shRNA Plasmid (h): sc-35335-SH, ERK 2 shRNA Plasmid (m): sc-35336-SH, ERK 2 shRNA Plasmid (r): sc-156031-SH, ERK 2 shRNA (h) Lentiviral Particles: sc-35335-V, ERK 2 shRNA (m) Lentiviral Particles: sc-35336-V and ERK 2 shRNA (r) Lentiviral Particles: sc-156031-V.

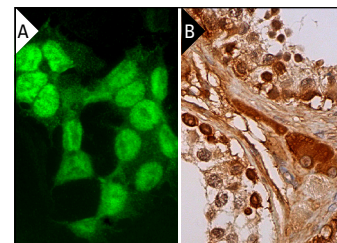
Molecular Weight of ERK 2: 42 kDa.

Positive Controls: BYDP whole cell lysate: sc-364368, K-562 whole cell lysate: sc-2203 or PC-3 cell lysate: sc-2220.

DATA



ERK 2 (C-8): sc-271458. Western blot analysis of ERK 2 expression in K-562 (A), HEL 92.1.7 (B), PC-3 (C), NIH/3T3 (D), BYDP (E) and RAW 264.7 (F) whole cell lysates.



ERK 2 (C-8): sc-271458. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear and cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic and nuclear staining of cells in seminiferous ducts and Leydig cells (B).

SELECT PRODUCT CITATIONS

1. Mediero, A., et al. 2011. Phospholipase C/protein kinase C pathway is essential for corneal re-epithelialization induced by A₂A. *Curr. Eye Res.* 36: 1108-1115.
2. Polidoro, L., et al. 2013. Vitamin D protects human endothelial cells from H₂O₂ oxidant injury through the Mek/Erk-Sirt1 axis activation. *J. Cardiovasc. Transl. Res.* 6: 221-231.
3. Martin, B., et al. 2016. GIT2 acts as a systems-level coordinator of neurometabolic activity and pathophysiological aging. *Front. Endocrinol.* 6: 191.



See **ERK 2 (D-2): sc-1647** for ERK 2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.