

ERK 2 (h2): 293T Lysate: sc-177196

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. Crews, C.M., et al. 1992. The primary structure of MEK, a protein kinase that phosphorylates the ERK gene product. *Science* 258: 478-480.
3. Owaki, H., et al. 1992. Extracellular signal-regulated kinases in T cells: characterization of human ERK 1 and ERK 2 cDNAs. *Biochem. Biophys. Res. Commun.* 182: 1416-1422.
4. 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.
5. Khokhlatchev, A.V., et al. 1998. Phosphorylation of the MAP kinase ERK2 promotes its homodimerization and nuclear translocation. *Cell* 93: 605-615.
6. Gutkind, J.S. 2000. Regulation of mitogen-activated protein kinase signaling networks by G protein-coupled receptors. *Sci. STKE* 2000: RE1.
7. Pouyssegur, J., et al. 2002. Fidelity and spatio-temporal control in MAP kinase (ERKs) signalling. *Biochem. Pharmacol.* 64: 755-763.
8. LocusLink Report (LocusID: 5594). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: MAPK1 (human) mapping to 22q11.21.

PRODUCT

ERK 2 (h2): 293T Lysate represents a lysate of human ERK 2 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

ERK 2 (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive ERK 2 antibodies.

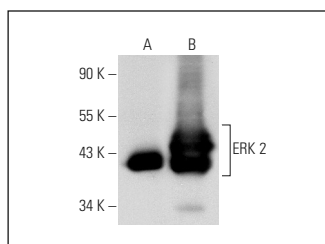
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

ERK 2 (D-2): sc-1647 is recommended as a positive control antibody for Western Blot analysis of enhanced human ERK 2 expression in ERK 2 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

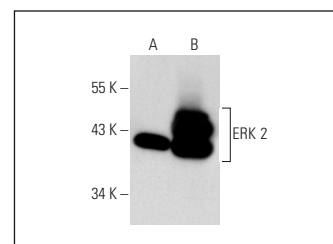
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



ERK 2 (D-2): sc-1647. Western blot analysis of ERK 2 expression in non-transfected: sc-117752 (A) and human ERK 2 transfected: sc-177196 (B) 293T whole cell lysates.



ERK 2 (12A4): sc-81457. Western blot analysis of ERK 2 expression in non-transfected: sc-117752 (A) and human ERK 2 transfected: sc-177196 (B) 293T whole cell lysates.

RESEARCH USE

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

PROTOCOLS

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