SANTA CRUZ BIOTECHNOLOGY, INC.

# ERK 3 (G-2): sc-393371

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Mitogen-activated protein kinase (MAPK) signaling pathways involve closely related MAP kinases, including extracellular-signal-related kinase 3 (ERK 3, also designated PRKM6 and p97MAPK). Serum, growth factors and phorbol esters can initiate ERK 3 signaling pathways. Despite lacking a definitive nuclear localization sequence, ERK 3 constitutively localizes to the nucleus upon activation. p38 pathway activation-dependent upregulation of ERK 3 is independent of the status of p53, Bcl-2 and caspase-3 during cell stress and damage induced by proteasome inhibition, suggesting ERK 3 in part mediates intracellular defense or cell rescue. The human ERK 3 gene maps to chromosome 15q21.2 and encodes a 721 amino acid protein.

## REFERENCES


1. Meloche, S., et al. 1996. Primary structure, expression and chromosomal locus of a human homolog of rat ERK 3. Oncogene 13: 1575-1579.
2. Zimmermann, J., et al. 2001. Proteasome- and p38-dependent regulation of ERK 3 expression. J. Biol. Chem. 276: 10759-10766.
3. Robinson, M.J., et al. 2002. Different domains of the mitogen-activated protein kinases ERK 3 and ERK 2 direct subcellular localization and upstream specificity *in vivo*. J. Biol. Chem. 277: 5094-5100.
4. Kant, S., et al. 2006. Characterization of the atypical MAPK ERK 4 and its activation of the MAPK-activated protein kinase MK5. J. Biol. Chem. 281: 35511-35519.
5. Hoeflich, K.P., et al. 2006. Regulation of ERK 3/MAPK6 expression by BRAF. Int. J. Oncol. 29: 839-849.
6. Anhe, G.F., et al. 2006. ERK 3 associates with MAP-2 and is involved in glucose-induced Insulin secretion. Mol. Cell. Endocrinol. 251: 33-41.
7. Di Benedetto, B., et al. 2007. Differential mRNA distribution of components of the ERK/MAPK signalling cascade in the adult mouse brain. J. Comp. Neurol. 500: 542-556.
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## CHROMOSOMAL LOCATION

Genetic locus: MAPK6 (human) mapping to 15q21.2; Mapk6 (mouse) mapping to 9 D.

## SOURCE

ERK 3 (G-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 304-339 within subdomain XI of ERK 3 of rat origin.

## 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-393371 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

ERK 3 (G-2) is recommended for detection of ERK 3 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ERK 3 siRNA (h): sc-35337, ERK 3 siRNA (m): sc-35338, ERK 3 shRNA Plasmid (h): sc-35337-SH, ERK 3 shRNA Plasmid (m): sc-35338-SH, ERK 3 shRNA (h) Lentiviral Particles: sc-35337-V and ERK 3 shRNA (m) Lentiviral Particles: sc-35338-V.

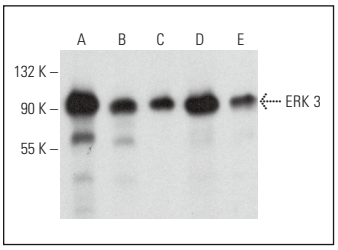
Molecular Weight of ERK 3: 97 kDa.

Positive Controls: PC-12 cell lysate: sc-2250, K-562 whole cell lysate: sc-2203 or SJRH30 cell lysate: sc-2287.

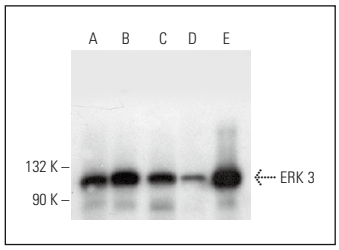
## RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA




ERK 3 (G-2): sc-393371. Western blot analysis of ERK 3 expression in PC-12 (**A**), RT-4 (**B**), 3T3-L1 (**C**), RAW 264.7 (**D**) and L8 (**E**) whole cell lysates.




ERK 3 (G-2): sc-393371. Western blot analysis of ERK 3 expression in PC-12 (**A**), K-562 (**B**), SJRH30 (**C**) and HeLa (**D**) whole cell lysates and KNRK nuclear extract (**E**).

## 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.

## PROTOCOLS

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