SANTA CRUZ BIOTECHNOLOGY, INC.

# ERK 3 siRNA (m): sc-35338

## 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.


## CHROMOSOMAL LOCATION

Genetic locus: Mapk6 (mouse) mapping to 9 D.

## PRODUCT

ERK 3 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ERK 3 shRNA Plasmid (m): sc-35338-SH and ERK 3 shRNA (m) Lentiviral Particles: sc-35338-V as alternate gene silencing products.

For independent verification of ERK 3 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35338A, sc-35338B and sc-35338C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

ERK 3 siRNA (m) is recommended for the inhibition of ERK 3 expression in mouse cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## GENE EXPRESSION MONITORING

ERK 3 (B-10): sc-365234 is recommended as a control antibody for monitoring of ERK 3 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ERK 3 gene expression knockdown using RT-PCR Primer: ERK 3 (m)-PR: sc-35338-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Jin, Y., et al. 2022. Inactivation of EGLN3 hydroxylase facilitates Erk3 degradation via autophagy and impedes lung cancer growth. Oncogene. E-published.


## RESEARCH USE

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