#7301 Store at -20°C

SignalSilence® ERK5 siRNA I

☑ 10 µM in 300 µl (3 nmol)

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not For Use In Diagnostic Procedures.

Species Cross-Reactivity: H, (Mk)

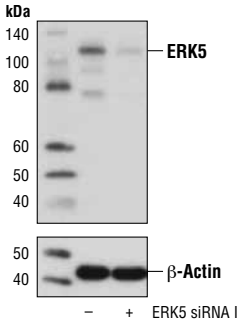
Description: SignalSilence® ERK5 siRNA I from Cell Signaling Technology (CST) allows the researcher to specifically inhibit ERK5 expression using RNA interference, a method whereby gene expression can be selectively silenced through the delivery of double stranded RNA molecules into the cell. All SignalSilence® siRNA products from CST are rigorously tested in-house and have been shown to reduce target protein expression by western analysis.

Background: Erk5 (Mitogen-activated protein kinase 7, Big mitogen-activated protein kinase 1) is a member of the MAPK superfamily implicated in the regulation numerous cellular processes including proliferation, differentiation, and survival (1-4). Like other MAPK family members, Erk5 contains a canonical activation loop TEY motif (Thr218/Tyr220) that is specifically phosphorylated by MAP2K5 (MEK5) in a growth factor-dependent, Ras-independent mechanism (5-7). For example, EGF stimulation promotes Erk5 phosphorylation that induces its translocation to the nucleus where it phosphorylates MEF2C and other transcriptional targets (5,6). Erk5 is also activated in response to granulocyte colony-stimulating factor (G-CSF) in hematopoietic progenitor cells where it promotes survival and proliferation (7). In neuronal cells, Erk5 is required for NGF-induced neurite outgrowth, neuronal homeostasis, and survival (8,9). Erk5 is thought to play a role in blood vessel integrity via maintenance of endothelial cell migration and barrier function (10-12). Although broadly expressed, research studies have shown that mice lacking *erk5* display numerous cardiac defects, suggesting Erk5 plays a critical role in vascular development and homeostasis (1,2).

Specificity/Sensitivity: SignalSilence® ERK5 siRNA I inhibits human and monkey ERK5 expression.

Directions for Use: CST recommends transfection with 100 nM SignalSilence® ERK5 siRNA I 48 to 72 hours prior to cell lysis. For transfection procedure, follow protocol provided by the transfection reagent manufacturer. Please feel free to contact CST with any questions on use. Each vial contains the equivalent of 100 transfections, which corresponds to a final siRNA concentration of 100 nM per transfection in a 24-well plate with a total volume of 300 ul per well.

Quality Control: Oligonucleotide synthesis is monitored base by base through trityl analysis to ensure appropriate coupling efficiency. The oligo is subsequently purified by affinity-solid phase extraction. The annealed RNA duplex is further analyzed by mass spectrometry to verify the exact composition of the duplex. Each lot is compared to the previous lot by mass spectrometry to ensure maximum lot-to-lot consistency.



Western blot analysis of extracts from 293T cells, transfected with 100 nM SignalSilence® Control siRNA (Unconjugated) #6568 (-) or SignalSilence® ERK5 siRNA I (+), using Erk5 (D23E9) Rabbit mAb #3552 (upper) or β-Actin (D6A8) Rabbit mAb #8457 (lower). The Erk5 (D23E9) Rabbit mAb confirms silencing of ERK5 expression, while the β-Actin (D6A8) Rabbit mAb is used as a loading control.

Entrez-Gene ID #5598
UniProt Acc. #Q13164

Storage: ERK5 siRNA I is supplied in RNAse-free water. *Aliquot and store at -20ºC.*

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

(1) Zhou, G. et al. (1995) *J Biol Chem* 270, 12665-9.
(2) Hayashi, M. and Lee, J.D. (2004) *J Mol Med* 82, 800-8.
(3) Wang, X. and Tournier, C. (2006) *Cell Signal* 18, 753-60.
(4) Nishimoto, S. and Nishida, E. (2006) *EMBO Rep* 7, 782-6.
(5) Kato, Y. et al. (1998) *Nature* 395, 713-6.
(6) Kato, Y. et al. (1997) *EMBO J* 16, 7054-66.
(7) Dong, F. et al. (2001) *J Biol Chem* 276, 10811-6.
(8) Obara, Y. et al. (2009) *J Biol Chem* 284, 23564-73.
(9) Finegan, K.G. et al. (2009) *Cell Death Differ* 16, 674-83.
(10) Spiering, D. et al. (2009) *J Biol Chem* 284, 24972-80.
(11) Sawhney, R.S. et al. (2009) *J Cell Physiol* 219, 152-61.
(12) Zhao, Z. et al. (2009) *Mol Cell Biochem* 322, 171-8.

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—Horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.