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SGK3 siRNA (m): sc-44853

BACKGROUND

Serine/threonine-protein kinase Sgk3 (SGK3), also designated serum/glucocorticoid regulated kinase 3, belongs to the Ser/Thr protein kinase family of proteins. The serum- and glucocorticoid-regulated kinase proteins are closely related to the Akt protein family. SGK1, a homolog of SGK3, activates ion channels, in particular potassium (K⁺) channels. SGK2 and SGK3 have been found to also be involved in this activation process, making all three of these proteins important regulators for cell proliferation, epithelial transport and neuromuscular excitability. SGK3 acts as a mediator of IL-3 dependent survival signals in the cell. It localizes to the early endosome and in vesicle-like structures. SGK3 is a widely expressed protein, but it is primarily detected in kidney, liver, pancreas, brain and heart. Phosphorylation of SGK3 at residue Ser 486 leads to an increase in SGK3 activation.

REFERENCES

1. Dai, F., et al. 1999. Cloning and mapping of a novel human serum/glucocorticoid regulated kinase-like gene, SGKL, to chromosome 8q12.3-q13.1. *Genomics* 62: 95-97.
2. Kobayashi, T., et al. 1999. Characterization of the structure and regulation of two novel isoforms of serum- and glucocorticoid-induced protein kinase. *Biochem. J.* 344: 189-197.
3. Gamper, N., et al. 2002. K⁺ channel activation by all three isoforms of serum- and glucocorticoid-dependent protein kinase SGK. *Pflugers. Arch.* 445: 60-66.
4. Lang, F., et al. 2003. Regulation of channels by the serum and glucocorticoid-inducible kinase-implications for transport, excitability and cell proliferation. *Cell. Physiol. Biochem.* 13: 41-50.
5. McCormick, J.A., et al. 2004. Targeted disruption of the protein kinase SGK3/CISK impairs postnatal hair follicle development. *Mol. Biol. Cell* 15: 4278-4288.
6. Henke, G., et al. 2004. Regulation of the voltage gated K⁺ channel Kv1.3 by the ubiquitin ligase Nedd4-2 and the serum and glucocorticoid inducible kinase SGK1. *J. Cell. Physiol.* 199: 194-199.

CHROMOSOMAL LOCATION

Genetic locus: Sgk3 (mouse) mapping to 1 A2.

PRODUCT

SGK3 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SGK3 shRNA Plasmid (m): sc-44853-SH and SGK3 shRNA (m) Lentiviral Particles: sc-44853-V as alternate gene silencing products.

For independent verification of SGK3 (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-44853A, sc-44853B and sc-44853C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SGK3 siRNA (m) is recommended for the inhibition of SGK3 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 μ M in 66 μ l. 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

SGK3 (C-6): sc-166847 is recommended as a control antibody for monitoring of SGK3 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 SGK3 gene expression knockdown using RT-PCR Primer: SGK3 (m)-PR: sc-44853-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.