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SANTA CRUZ BIOTECHNOLOGY, INC.

SGK2 siRNA (r): sc-156059

BACKGROUND

The serum- and glucocorticoid-regulated kinases (SGKs) include SGK1, SGK2 and SGK3 and are members of the Serine/threonine protein kinase family. SGKs play an important role in activating certain potassium, sodium and chloride channels, suggesting an involvement in the regulation of processes such as cell survival, neuronal excitability and renal sodium excretion. The SGKs display structural and sequence similarity to the PKB/Akt family except for the absence of a Pleckstrin homology (PH) domain. The SGKs are also downstream targets of PI 3-kinase-stimulated growth factor signaling. They can all phosphorylate NEDD4-1, which subsequently activates various channels and transporters including ENaC, KV1.3 or EAAT1. Aldosterone induces the expression of SGK1, but not SGK2 or SGK3. SGK3 is ubiquitously expressed, but SGK2 only shows significant levels of expression in liver, kidney and pancreas.

REFERENCES

1. Park, J., et al. 1999. Serum- and glucocorticoid-inducible kinase (SGK) is a target of the PI 3-kinase-stimulated signaling pathway. EMBO J. 18: 3024-3033.
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. Lang, F. and Cohen, P. 2001. Regulation and physiological roles of serum- and glucocorticoid-induced protein kinase isoforms. Sci. STKE 2001: re17.
4. 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.
5. Friedrich, B., et al. 2003. The Serine/threonine kinases SGK2 and SGK3 are potent stimulators of the Na^+ channel α, β, γ-ENaC. Pflugers Arch. 445: 693-696.
6. Tessier, M. and Woodgett, J.R. 2006. Role of the PX domain and phosphorylation in activation of serum and glucocorticoid-regulated kinase-3. J. Biol. Chem. 281: 23978-23989.

CHROMOSOMAL LOCATION

Genetic locus: Sgk2 (rat) mapping to 3q42.

PRODUCT

SGK2 siRNA (r) 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 SGK2 shRNA Plasmid (r): sc-156059-SH and SGK2 shRNA (r) Lentiviral Particles: sc-156059-V as alternate gene silencing products.

For independent verification of SGK2 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-156059A, sc-156059B and sc-156059C.

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

SGK2 siRNA (r) is recommended for the inhibition of SGK2 expression in rat 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

SGK2 (3Q-2): sc-100355 is recommended as a control antibody for monitoring of SGK2 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 SGK2 gene expression knockdown using RT-PCR Primer: SGK2 (r)-PR: sc-156059-PR (20 µl). 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.