SANTA CRUZ BIOTECHNOLOGY, INC.

RIOK1 siRNA (h): sc-95193

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (Ser/Thr) protein kinases. RIOK1 (RIO kinase 1), also known as RIO1 or AD034, is a 568 amino acid protein that contains one protein kinase domain and belongs to the RIO subfamily of atypical Ser/Thr protein kinases. Existing as two alternatively spliced isoforms, RIOK1 functions to catalyze the ATP-dependent phosphorylation of target proteins and is thought to play an important role in ribosome biogenesis and cell cycle progression.

REFERENCES

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2. Hunter, T. 1991. Protein kinase classification. Meth. Enzymol. 200: 3-37.
3. Hanks, S.K. and Quinn, A.M. 1991. Protein kinase catalytic domain sequence database: identification of conserved features of primary structure and classification of family members. Methods Enzymol. 200: 38-62.
4. Angermayr, M. and Bandlow, W. 2002. RIO1, an extraordinary novel protein kinase. FEBS Lett. 524: 31-36.
5. Jin, J., et al. 2004. Proteomic, functional, and domain-based analysis of *in vivo* 14-3-3 binding proteins involved in cytoskeletal regulation and cellular organization. Curr. Biol. 14: 1436-1450.
6. LaRonde-LeBlanc, N. and Wlodawer, A. 2005. The RIO kinases: an atypical protein kinase family required for ribosome biogenesis and cell cycle progression. Biochim. Biophys. Acta 1754: 14-24.
7. Laronde-Leblanc, N., et al. 2005. Structure and activity of the atypical serine kinase RIO1. FEBS J. 272: 3698-3713.
8. LaRonde-LeBlanc, N. and Wlodawer, A. 2005. A family portrait of the RIO kinases. J. Biol. Chem. 280: 37297-37300.
9. Suzuki, C., et al. 2007. Identification of Myc-associated protein with JmjC domain as a novel therapeutic target oncogene for lung cancer. Mol. Cancer Ther. 6: 542-551.

CHROMOSOMAL LOCATION

Genetic locus: RIOK1 (human) mapping to 6p24.3.

PRODUCT

RIOK1 siRNA (h) 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 RIOK1 shRNA Plasmid (h): sc-95193-SH and RIOK1 shRNA (h) Lentiviral Particles: sc-95193-V as alternate gene silencing products.

For independent verification of RIOK1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-95193A, sc-95193B and sc-95193C.

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

RIOK1 siRNA (h) is recommended for the inhibition of RIOK1 expression in human 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RIOK1 gene expression knockdown using RT-PCR Primer: RIOK1 (h)-PR: sc-95193-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.