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▶ RBKS siRNA (m): sc-152723

BACKGROUND

The phosphorylation and dephosphorylation of proteins is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. Ribose is a five carbon-containing monosaccharide that is an essential component of RNA and is, thus, critical to the survival of all living creatures. Ribose is trapped inside the cell (for use in a variety of chemical reactions) via phosphorylation by RBKS (Ribokinase), a 322 amino acid member of the carbohydrate kinase pfkB family. RBKS uses magnesium as a cofactor to catalyze the ATP-dependent phosphorylation of ribose, a reaction that yields ADP and ribose 5-phosphate and is the first step in ribose metabolism.

REFERENCES

1. Bork, P., et al. 1993. Convergent evolution of similar enzymatic function on different protein folds: the hexokinase, ribokinase, and galactokinase families of sugar kinases. *Protein Sci.* 2: 31-40.
2. Sigrell, J.A., et al. 1999. Induced fit on sugar binding activates ribokinase. *J. Mol. Biol.* 290: 1009-1018.
3. Andersson, C.E., et al. 2002. Activation of ribokinase by monovalent cations. *J. Mol. Biol.* 315: 409-419.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 611132. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Park, J., et al. 2007. Identification and characterization of human ribokinase and comparison of its properties with *E. coli* ribokinase and human adenosine kinase. *FEBS Lett.* 581: 3211-3216.
6. Park, J., et al. 2008. Adenosine kinase and ribokinase—the RK family of proteins. *Cell. Mol. Life Sci.* 65: 2875-2896.

CHROMOSOMAL LOCATION

Genetic locus: Rbks (mouse) mapping to 5 B1.

PRODUCT

RBKS 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 RBKS shRNA Plasmid (m): sc-152723-SH and RBKS shRNA (m) Lentiviral Particles: sc-152723-V as alternate gene silencing products.

For independent verification of RBKS (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-152723A, sc-152723B and sc-152723C.

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.

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

RBKS siRNA (m) is recommended for the inhibition of RBKS 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RBKS gene expression knockdown using RT-PCR Primer: RBKS (m)-PR: sc-152723-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.