

RUNDC1 siRNA (h): sc-94240

BACKGROUND

RUNDC1 (RUN domain containing 1) is a 613 amino acid protein that contains one RUN domain. RUNDC1, GAS41, RPS6K4, and CRMP-2 have been found to be negatively involved in the regulation of p53 transcriptional activity, and thus RUNDC1 may have oncogenic activity. Existing as two alternatively spliced isoforms, the RUNDC1 gene maps to human chromosome 17q21.31. Chromosome 17 makes up over 2.5% of the human genome with about 81 million bases encoding over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1. Tumor suppressor p53 is necessary for maintenance of cellular genetic integrity by moderating cell fate through DNA repair versus cell death. Like p53, BRCA1 is directly involved in DNA repair, specifically it is recognized as a genetic determinant of early onset breast cancer and predisposition to cancers of the ovary, colon, prostate gland and fallopian tubes. Chromosome 17 is also linked to neurofibromatosis, a condition characterized by neural and epidermal lesions, and dysregulated Schwann cell growth. Alexander disease, Birt-Hogg-Dube syndrome and Canavan disease are also associated with chromosome 17.

REFERENCES

1. Welsch, M.J., Kronic, A. and Medenica, M.M. 2005. Birt-Hogg-Dube syndrome. *Int. J. Dermatol.* 44: 668-673.
2. Nusbaum, R., Vogel, K.J. and Ready, K. 2006-2007. Susceptibility to breast cancer: hereditary syndromes and low penetrance genes. *Breast Dis.* 27: 21-50.
3. Llanos, S., Efeyan, A., Monsech, J., Dominguez, O. and Serrano, M. 2006. A high-throughput loss-of-function screening identifies novel p53 regulators. *Cell Cycle* 5: 1880-1885.
4. Zody, M.C., Garber, M., Adams, D.J., Sharpe, T., Harrow, J., Lupski, J.R., Nicholson, C., Searle, S.M., Wilming, L., Young, S.K., Abouelleil, A., Allen, N.R., Bi, W., Bloom, T., Borowsky, M.L., Bugalter, B.E., Butler, J., et al. 2006. DNA sequence of human chromosome 17 and analysis of rearrangement in the human lineage. *Nature* 440: 1045-1049.
5. Liu, D.X. and Lobie, P.E. 2007. Transcriptional activation of p53 by Pitx1. *Cell Death Differ.* 14: 1893-1907.
6. Al-Dirbashi, O.Y., Rashed, M.S., Al-Qahtani, K., Al-Mokhadab, M.A., Kurdi, W. and Al-Sayed, M.A. 2007. Quantification of N-acetylaspartic acid in urine by LC-MS/MS for the diagnosis of Canavan disease. *J. Inher. Metab. Dis.* 30: 612.
7. Tai, Y.C., Domchek, S., Parmigiani, G. and Chen, S. 2007. Breast cancer risk among male BRCA1 and BRCA2 mutation carriers. *J. Natl. Cancer Inst.* 99: 1811-1814.
8. Dephoure, N., Zhou, C., Villen, J., Beausoleil, S.A., Bakalarski, C.E., Elledge, S.J. and Gygi, S.P. 2008. A quantitative atlas of mitotic phosphorylation. *Proc. Natl. Acad. Sci. USA* 105: 10762-10767.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CHROMOSOMAL LOCATION

Genetic locus: RUNDC1 (human) mapping to 17q21.31.

PRODUCT

RUNDC1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RUNDC1 shRNA Plasmid (h): sc-94240-SH and RUNDC1 shRNA (h) Lentiviral Particles: sc-94240-V as alternate gene silencing products.

For independent verification of RUNDC1 (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-94240A, sc-94240B and sc-94240C.

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

RUNDC1 siRNA (h) is recommended for the inhibition of RUNDC1 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 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 RUNDC1 gene expression knockdown using RT-PCR Primer: RUNDC1 (h)-PR: sc-94240-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.