

RecQL4 siRNA (h): sc-38219

BACKGROUND

In humans, the RecQ helicase family includes WRN, BLM, RecQL1, RecQL4 and RecQL5 proteins, all of which contain a conserved helicase domain. WRN and BLM have been demonstrated to be the responsible genes in Werner and Bloom syndromes, respectively. RecQL1 and RecQL5 also belong to the human RecQ helicase family, but their correlation with genetic disorders, if any, is unknown. The levels of RecQ helicase family members are differentially upregulated to guarantee genomic stability in cells that are transformed or actively proliferating. The gene encoding human RecQL4, which maps to chromosome 8q24.3, is believed to be the gene responsible for the development of Rothmund-Thomson syndrome (RTS). The genes encoding RecQL1 and RecQL5 map to chromosome 12p12.1 and 17q25.1, respectively.

REFERENCES

1. Seki, M., et al. 1994. Molecular cloning of cDNA encoding human DNA helicase Q1 which has homology to *Escherichia coli* Rec Q helicase and localization of the gene at chromosome 12p12. *Nucleic Acids Res.* 22: 4566-4573.
2. Kitao, S., et al. 1999. Mutations in RecQL4 cause a subset of cases of Rothmund-Thomson syndrome. *Nat. Genet.* 22: 82-84.
3. Ohhata, T., et al. 2000. Cloning, genomic structure and chromosomal localization of the gene encoding mouse DNA helicase RecQ helicase protein-like 4. *Gene* 261: 251-258.
4. Kawabe, T., et al. 2000. Differential regulation of human RecQ family helicases in cell transformation and cell cycle. *Oncogene* 19: 4764-4772.

CHROMOSOMAL LOCATION

Genetic locus: RECQL4 (human) mapping to 8q24.3.

PRODUCT

RecQL4 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 RecQL4 shRNA Plasmid (h): sc-38219-SH and RecQL4 shRNA (h) Lentiviral Particles: sc-38219-V as alternate gene silencing products.

For independent verification of RecQL4 (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-38219A, sc-38219B and sc-38219C.

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

RecQL4 siRNA (h) is recommended for the inhibition of RecQL4 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.

GENE EXPRESSION MONITORING

RecQL4 (B-3): sc-518189 is recommended as a control antibody for monitoring of RecQL4 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 RecQL4 gene expression knockdown using RT-PCR Primer: RecQL4 (h)-PR: sc-38219-PR (20 μ l, 451 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Su, Y., et al. 2010. Human RecQL4 helicase plays critical roles in prostate carcinogenesis. *Cancer Res.* 70: 9207-9217.
2. Qiao, C., et al. 2016. Oroxylin A modulates mitochondrial function and apoptosis in human colon cancer cells by inducing mitochondrial translocation of wild-type p53. *Oncotarget* 7: 17009-17020.

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.