



TRF4 siRNA (h): sc-91936

BACKGROUND

DNA replication, recombination and repair, all of which are necessary for genomic stability, require the presence of exonucleases. In DNA replication, these enzymes are involved in the processing of Okazaki fragments, whereas in DNA repair, they function to excise damaged DNA fragments and correct recombinational mismatches. These exonucleases include the family of DNA polymerases. TRF4 (topoisomerase-related function protein 4-1), also known as POLS (polymerase sigma), POLK (polymerase κ) or LAK-1, is a member of the Y-family of translesion DNA polymerases and is involved in DNA replication and repair. In addition, TRF4 may be involved in the cohesion of sister chromatids in association with the replication fork. Once replicated, sister chromatids must be held together until anaphase to ensure accurate chromosome segregation.

REFERENCES

1. Walowsky, C., Fitzhugh, D.J., Castaño, I.B., Ju, J.Y., Levin, N.A. and Christman, M.F. 1999. The topoisomerase-related function gene TRF4 affects cellular sensitivity to the antitumor agent camptothecin. *J. Biol. Chem.* 274: 7302-7308.
2. Wang, Z., Castaño, I.B., De Las Peñas, A., Adams, C. and Christman, M.F. 2000. Pol κ : a DNA polymerase required for sister chromatid cohesion. *Science* 289: 774-779.
3. Carson, D.R. and Christman, M.F. 2001. Evidence that replication fork components catalyze establishment of cohesion between sister chromatids. *Proc. Natl. Acad. Sci. USA* 98: 8270-8275.
4. Hubscher, U., Maga, G. and Spadari, S. 2002. Eukaryotic DNA polymerases. *Annu. Rev. Biochem.* 71: 133-163.
5. Wang, Z. and Christman, M.F. 2002. Replication-related activities establish cohesion between sister chromatids. *Cell Biochem. Biophys.* 35: 289-301.

CHROMOSOMAL LOCATION

Genetic locus: PAPD7 (human) mapping to 5p15.31.

PRODUCT

TRF4 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 TRF4 shRNA Plasmid (h): sc-91936-SH and TRF4 shRNA (h) Lentiviral Particles: sc-91936-V as alternate gene silencing products.

For independent verification of TRF4 (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-91936A, sc-91936B and sc-91936C.

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

TRF4 siRNA (h) is recommended for the inhibition of TRF4 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

TRF4 (2794C4a): sc-81637 is recommended as a control antibody for monitoring of TRF4 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRF4 gene expression knockdown using RT-PCR Primer: TRF4 (h)-PR: sc-91936-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.