SANTA CRUZ BIOTECHNOLOGY, INC.

TERT siRNA (h): sc-36641

SC-36641 BACKGROUND

Telomerase is an RNA-dependent DNA polymerase that catalyzes the addition of telomeric repeat sequences to chromosome ends. In most human somatic cells, telomerase activity is undetectable, and telomeres shorten with successive cell divisions. However, telomerase activity is detectable in immortal cells and in many human tumors. Two candidate mammalian telomerase proteins have been cloned. Human TP1 (for telomerase-associated protein 1), also designated TLP1 in rat (for telomerase protein component 1), is homologous to the *Tetrahymena* p80 telomerase protein and has been shown to interact with mammalian telomerase RNA. Human TERT (for telomerase reverse transcriptase), also designated hEST2 (for ever shorter telomeres), is homologous to the p123 telomerase protein from *Euplotes* and to the yeast Est2 protein. Expression of TERT mRNA has been shown to correlate with telomerase activity in various cell lines.

CHROMOSOMAL LOCATION

Genetic locus: TERT (human) mapping to 5p15.33.

PRODUCT

TERT siRNA (h) is a target-specific 19-25 nt siRNA 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 TERT shRNA Plasmid (h): sc-36641-SH and TERT shRNA (h) Lentiviral Particles: sc-36641-V as alternate gene silencing 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 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

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

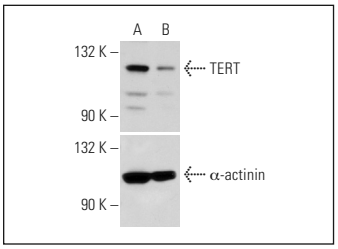
GENE EXPRESSION MONITORING

TERT (A-6): sc-393013 is recommended as a control antibody for monitoring of TERT 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 TERT gene expression knockdown using RT-PCR Primer: TERT (h)-PR: sc-36641-PR (20 µl, 452 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



TERT siRNA (h): sc-36641. Western blot analysis of TERT expression in non-transfected control (**A**) and TERT (H-231) siRNA transfected (**B**) Jurkat cells. Blot probed with TERT (H-231): sc-7212. α-actinin (H-2): sc-17829 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Ballal, R.D., et al. 2009. BRCA1 localization to the telomere and its loss from the telomere in response to DNA damage. J. Biol. Chem. 284: 36083-36098.
2. Miyazaki, Y., et al. 2015. Telomerase activity in the occurrence and progression of oral squamous cell carcinoma. J. Oral Sci. 57: 295-303.
3. Cheung, D.H., et al. 2017. Nucleophosmin interacts with PIN2/TERF1-interacting telomerase inhibitor 1 (PinX1) and attenuates the PinX1 inhibition on telomerase activity. Sci. Rep. 7: 43650.
4. Liu, R., et al. 2018. Regulation of mutant TERT by BRAF V600E/MAP kinase pathway through FOS/GABP in human cancer. Nat. Commun. 9: 579.
5. Dilshara, M.G., et al. 2019. Camptothecin induces c-Myc- and Sp1-mediated hTERT expression in LNCaP cells: involvement of reactive oxygen species and PI3K/Akt. Food Chem. Toxicol. 127: 53-60.
6. Zhang, Y., et al. 2020. 6-Dithio-2'-deoxyguanosine analogs induce reactive oxygen species-mediated tumor cell apoptosis via bi-targeting thioredoxin 1 and telomerase. Toxicol. Appl. Pharmacol. 401: 115079.
7. Bernabé-García, M., et al. 2021. Telomerase reverse transcriptase (TERT) activates transcription of miR500A to inhibit Hedgehog signaling and promote cell invasiveness. Mol. Oncol. 15: 1818-1834.

RESEARCH USE

For research use only, not for use in diagnostic procedures.