SANTA CRUZ BIOTECHNOLOGY, INC.

POLR3A siRNA (h): sc-90684

BACKGROUND

RNA polymerase III (Pol III) is a multi-subunit complex responsible for catalyzing the transcription of DNA into RNA. POLR3A (polymerase (RNA) III (DNA directed) polypeptide A), also known as RPC1 or RPC155, is a 1,390 amino acid protein that localizes to the nucleus and belongs to the RNA polymerase β chain family. Existing as the largest and catalytic core component of Pol III, POLR3A functions as a DNA-dependent RNA polymerase that catalyzes the conversion of a nucleoside triphosphate into a diphosphate, thereby transcribing DNA into RNA. The gene encoding POLR3A maps to human chromosome 10, which houses over 1,200 genes and comprises nearly 4.5% of the human genome. Defects in some of the genes that map to chromosome 10 are associated with Charcot-Marie-Tooth disease, Jackson-Weiss syndrome, Usher syndrome, nonsyndromatic deafness, Wolman's syndrome, Cowden syndrome, multiple endocrine neoplasia type 2 and porphyria.

REFERENCES

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2. Sepehri, S. and Hernandez, N. 1997. The largest subunit of human RNA polymerase III is closely related to the largest subunit of yeast and trypanosome RNA polymerase III. Genome Res. 7: 1006-1019.
3. Mertens, C., et al. 2001. Nuclear particles containing RNA polymerase III complexes associated with the junctional plaque protein plakophilin 2. Proc. Natl. Acad. Sci. USA 98: 7795-7800.
4. Kuwana, M., et al. 2002. Identification of an immunodominant epitope on RNA polymerase III recognized by systemic sclerosis sera: application to enzyme-linked immunosorbent assay. Arthritis Rheum. 46: 2742-2747.
5. Hu, P., et al. 2002. Characterization of human RNA polymerase III identifies orthologues for *Saccharomyces cerevisiae* RNA polymerase III subunits. Mol. Cell. Biol. 22: 8044-8055.
6. Natalizio, B.J., et al. 2009. The carboxyl-terminal domain of RNA polymerase II is not sufficient to enhance the efficiency of pre-mRNA capping or splicing in the context of a different polymerase. J. Biol. Chem. 284: 8692-8702.

CHROMOSOMAL LOCATION

Genetic locus: POLR3A (human) mapping to 10q22.3.

PRODUCT

POLR3A 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see POLR3A shRNA Plasmid (h): sc-90684-SH and POLR3A shRNA (h) Lentiviral Particles: sc-90684-V as alternate gene silencing products.

For independent verification of POLR3A (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-90684A, sc-90684B and sc-90684C.

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

POLR3A siRNA (h) is recommended for the inhibition of POLR3A 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor POLR3A gene expression knockdown using RT-PCR Primer: POLR3A (h)-PR: sc-90684-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Veronese, A., et al. 2015. Allele-specific loss and transcription of the miR-15a/16-1 cluster in chronic lymphocytic leukemia. Leukemia 29: 86-95.

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.