

Pol III RPC62 siRNA (h): sc-76188

BACKGROUND

RNA polymerase III (Pol III) is a multi-subunit complex responsible for catalyzing the transcription of DNA into RNA. Pol III RPC62, also known as POLR3C (polymerase (RNA) III (DNA directed) polypeptide C), RPC3 or RPC62, is a 534 amino acid protein that localizes to the nucleus and belongs to the eukaryotic RPC3/POLR3C RNA polymerase subunit family. Existing as a component of the Pol III complex, Pol III RPC62 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 Pol III RPC62 maps to human chromosome 1q21.1, which spans 260 million base pairs, contains over 3,000 genes and comprises nearly 8% of the human genome. Chromosome 1 houses a large number of disease-associated genes, including those that are involved in familial adenomatous polyposis, Stickler syndrome, Parkinson's disease, Gaucher disease, schizophrenia and Usher syndrome. Aberrations in chromosome 1 are found in a variety of cancers, including head and neck cancer, malignant melanoma and multiple myeloma.

REFERENCES

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2. Maruyama, K., et al. 1994. Oligo-capping: a simple method to replace the cap structure of eukaryotic mRNAs with oligoribonucleotides. *Gene* 138: 171-174.
3. Wang, Z., et al. 1997. Three human RNA polymerase III-specific subunits form a subcomplex with a selective function in specific transcription initiation. *Genes Dev.* 11: 1315-1326.
4. Hsieh, Y.J., et al. 1999. Cloning and characterization of two evolutionarily conserved subunits (TFIIC102 and TFIIC63) of human TFIIC and their involvement in functional interactions with TFIIB and RNA polymerase III. *Mol. Cell. Biol.* 19: 4944-4952.
5. Hsieh, Y.J., et al. 1999. The TFIIC90 subunit of TFIIC interacts with multiple components of the RNA polymerase III machinery and contains a histone-specific acetyltransferase activity. *Mol. Cell. Biol.* 19: 7697-7704.

CHROMOSOMAL LOCATION

Genetic locus: POLR3C (human) mapping to 1q21.1.

PRODUCT

Pol III RPC62 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 Pol III RPC62 shRNA Plasmid (h): sc-76188-SH and Pol III RPC62 shRNA (h) Lentiviral Particles: sc-76188-V as alternate gene silencing products.

For independent verification of Pol III RPC62 (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-76188A, sc-76188B and sc-76188C.

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

Pol III RPC62 siRNA (h) is recommended for the inhibition of Pol III RPC62 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 Pol III RPC62 gene expression knockdown using RT-PCR Primer: Pol III RPC62 (h)-PR: sc-76188-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Suspène, R., et al. 2017. Self-cytoplasmic DNA upregulates the mutator enzyme APOBEC3A leading to chromosomal DNA damage. *Nucleic Acids Res.* 45: 3231-3241.

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.