SANTA CRUZ BIOTECHNOLOGY, INC.

Rrn3 siRNA (m): sc-153128

BACKGROUND

In eukaryotes, ribosomal RNA genes are transcribed by RNA polymerase (pol I). In *Saccharomyces cerevisiae,* transcription of rRNA genes requires at least three transcription factors, which include the two multisubunit factors core factor and UAF that function in the assembly of the preinitiation complex. The third factor, Rrn3, functions as a single subunit and is not required for the preinitiation complex assembly. Unlike other pol I transcription factors, Rrn3 is functionally conserved between yeast and mammals as an rRNA gene transcription regulator. Human Rrn3 is 21% homologous to the yeast Rrn3 protein and is a member of a conserved gene family spanning the fungi, plant and animal kingdoms. hRrn3 is highly expressed in the lung, retina, thymus, and prostate. Rrn3 may be identical to the transcription factor TIF-IA, since both TIF-IA and Rrn3 associate with pol I and their activities are growth rate dependent.

REFERENCES

1. Schnapp, A., et al. 1990. A growth-dependent transcription initiation factor (TIF-IA) interacting with RNA polymerase I regulates mouse ribosomal RNA synthesis. EMBO J. 9: 2857-2863.
2. Yamamoto, R.T., et al. 1996. RRN3 gene of *Saccharomyces cerevisiae* encodes an essential RNA polymerase I transcription factor which interacts with the polymerase independently of DNA template. EMBO J. 15: 3964-3973.
3. Keener, J., et al. 1998. Reconstitution of yeast RNA polymerase I transcription *in vitro* from purified components. TATA-binding protein is not required for basal transcription. J. Biol. Chem. 273: 33795-33802.
4. Milkereit, P. and Tschochner, H. 1998. A specialized form of RNA polymerase I, essential for initiation and growth-dependent regulation of rRNA synthesis, is disrupted during transcription. EMBO J. 17: 3692-3703.
5. Moorefield, B., et al. 2000. RNA polymerase I transcription factor Rrn3 is functionally conserved between yeast and human. Prod. Natl. Acad. Sci. USA 97: 4724-4729.

CHROMOSOMAL LOCATION

Genetic locus: Rrn3 (mouse) mapping to 16 A1.

PRODUCT

Rrn3 siRNA (m) 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 Rrn3 shRNA Plasmid (m): sc-153128-SH and Rrn3 shRNA (m) Lentiviral Particles: sc-153128-V as alternate gene silencing products.

For independent verification of Rrn3 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-153128A, sc-153128B and sc-153128C.

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 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

Rrn3 siRNA (m) is recommended for the inhibition of Rrn3 expression in mouse 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

Rrn3 (D-9): sc-390464 is recommended as a control antibody for monitoring of Rrn3 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 Rrn3 gene expression knockdown using RT-PCR Primer: Rrn3 (m)-PR: sc-153128-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. Achiron, A., et al. 2012. Suppressed RNA-polymerase 1 pathway is associated with benign multiple sclerosis. PLoS ONE 7: e46871.

RESEARCH USE

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