

UBTFL1 siRNA (m): sc-141426

BACKGROUND

The transcription of ribosomal RNA genes by RNA polymerase I (Pol I) is tightly coordinated with the growth state of the cell. In addition to Pol I, transcription of ribosomal genes requires the *trans*-activating factor UBF (upstream binding factor). UBF functions by binding to DNA elements within the RNA gene promoter and enhancer regions and directly associating with Pol I, tethering it to the promoter complex. Related to UBF, UBTFL1 (upstream-binding factor 1-like protein 1) is a 393 amino acid nuclear protein that contains two HMG box DNA-binding domains, which play important architectural roles in assembly of nucleoprotein complexes. The gene encoding UBTFL1 maps to human chromosome 11, which houses over 1,400 genes and comprises nearly 4% of the human genome.

REFERENCES

1. Jantzen, H.M., et al. 1990. Nucleolar transcription factor hUBF contains a DNA-binding motif with homology to HMG proteins. *Nature* 344: 830-836.
2. Voit, R., et al. 1992. The nucleolar transcription factor mUBF is phosphorylated by casein kinase II in the C-terminal hyperacidic tail which is essential for transactivation. *EMBO J.* 11: 2211-2218.
3. Kuhn, A., et al. 1993. The nucleolar transcription activator UBF relieves Ku antigen-mediated repression of mouse ribosomal gene transcription. *Nucleic Acids Res.* 21: 2057-2063.
4. Codony-Servat, J., et al. 1996. The two isoforms of the 90-kDalton nucleolus organizer region autoantigen (upstream binding factor) bind with different avidity to DNA modified by the antitumor drug cisplatin. *Biochem. Pharmacol.* 51: 1131-1136.
5. Grummt, I. 1999. Regulation of mammalian ribosomal gene transcription by RNA polymerase I. *Prog. Nucleic Acid Res. Mol. Biol.* 62: 109-154.
6. Hannan, K.M., et al. 2000. Rb and p130 regulate RNA polymerase I transcription: Rb disrupts the interaction between UBF and SL-1. *Oncogene* 19: 4988-4999.
7. Panov, K.I., et al. 2001. A step subsequent to preinitiation complex assembly at the ribosomal RNA gene promoter is rate limiting for human RNA polymerase I-dependent transcription. *Mol. Cell. Biol.* 21: 2641-2649.
8. Meraner, J., et al. 2006. Acetylation of UBF changes during the cell cycle and regulates the interaction of UBF with RNA polymerase I. *Nucleic Acids Res.* 34: 1798-1806.
9. Lin, C.H., et al. 2007. Mass spectrometric identification of phosphorylation sites of the rRNA transcription factor upstream binding factor (UBF). *Am. J. Physiol. Cell Physiol.* 292: C1617-C1624.

CHROMOSOMAL LOCATION

Genetic locus: Ubtfl1 (mouse) mapping to 9 A2.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

UBTFL1 siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see UBTFL1 shRNA Plasmid (m): sc-141426-SH and UBTFL1 shRNA (m) Lentiviral Particles: sc-141426-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 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

UBTFL1 siRNA (m) is recommended for the inhibition of UBTFL1 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 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 UBTFL1 gene expression knockdown using RT-PCR Primer: UBTFL1 (m)-PR: sc-141426-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.