SANTA CRUZ BIOTECHNOLOGY, INC.

TCEA1 siRNA (m): sc-63110

BACKGROUND

Initiation of transcription from protein-coding genes in eukaryotes is a complex process that requires RNA polymerase II (Pol II) and several basal transcription factors to form the preinitiation complex (PIC). After initiation, promotor-specific contacts between the PIC and Pol II are disrupted, thus allowing elongation (a process regulated by Pol II and several proteins called elongation factors) to begin. TCEA1 (transcription elongation factor A protein 1), also known as TFIIS or SII, is an elongation factor that is essential for proper elongation past DNA arresting sites. When template-encoded arresting sites trap elongating RNA polymerases, the transcription complex becomes locked, preventing efficient elongation. TCEA1 binds to Pol II and functions to cleave the nascent transcript, thereby unlocking the complex and allowing transcription to continue. Localized to the nucleus, TCEA1 contains three independently-folding domains, all of which are necessary for proper binding to Pol II. Defects in the gene encoding TCEA1 are implicated in salivary gland pleiomorphic adenomas, which are the most common form of benign epithelial tumors of the salivary gland.

REFERENCES

1. Ito, T., et al. 2000. Gene structure and chromosome mapping of mouse transcription elongation factor S-II (Tcea1). Gene 244: 55-63.
2. Kulish, D. and Struhl, K. 2001. TFIIS enhances transcriptional elongation through an artificial arrest site *in vivo*. Mol. Cell. Biol. 21: 4162-4168.
3. Kugawa, F. and Aoki, M. 2002. Genomic cloning of *Xenopus* TFIIS (TCEA1) and identification of its transcription start site. DNA Seq. 13: 55-60.
4. Shakib, K., et al. 2005. Proteomics profiling of nuclear proteins for kidney fibroblasts suggests hypoxia, meiosis, and cancer may meet in the nucleus. Proteomics 5: 2819-2838.
5. Ito, T., et al. 2006. Transcription elongation factor S-II is required for definitive hematopoiesis. Mol. Cell. Biol. 26: 3194-3203.
6. Fish, R.N., et al. 2006. Genetic interactions between TFIIF and TFIIS. Genetics 173: 1871-1884.
7. Asp, J., et al. 2006. CHCHD7-PLAG1 and TCEA1-PLAG1 gene fusions resulting from cryptic, intrachromosomal 8q rearrangements in pleomorphic salivary gland adenomas. Genes Chromosomes Cancer 45: 820-828.

CHROMOSOMAL LOCATION

Genetic locus: Tcea1 (mouse) mapping to 1 A1.

PRODUCT

TCEA1 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 TCEA1 shRNA Plasmid (m): sc-63110-SH and TCEA1 shRNA (m) Lentiviral Particles: sc-63110-V as alternate gene silencing products.

For independent verification of TCEA1 (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-63110A, sc-63110B and sc-63110C.

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

TCEA1 siRNA (m) is recommended for the inhibition of TCEA1 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

TCEA1 (B-6): sc-393520 is recommended as a control antibody for monitoring of TCEA1 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 TCEA1 gene expression knockdown using RT-PCR Primer: TCEA1 (m)-PR: sc-63110-PR (20 µl). 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.

PROTOCOLS

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