



TCEA1 (h): 293T Lysate: sc-111570

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., Seldin, M.F., Taketo, M.M., Kubo, T. and Natori, S. 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., Norman, J.T., Fine, L.G., Brown, L.R. and Godovac-Zimmermann, J. 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., Arimitsu, N., Takeuchi, M., Kawamura, N., Nagata, M., Saso, K., Akimitsu, N., Hamamoto, H., Natori, S., Miyajima, A. and Sekimizu, K. 2006. Transcription elongation factor S-II is required for definitive hematopoiesis. *Mol. Cell. Biol.* 26: 3194-3203.
6. Fish, R.N., Ammerman, M.L., Davie, J.K., Lu, B.F., Pham, C., Howe, L., Ponticelli, A.S. and Kane, C.M. 2006. Genetic interactions between TFIIF and TFIIS. *Genetics* 173: 1871-1884.
7. Asp, J., Persson, F., Kost-Alimova, M. and Stenman, G. 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.
8. Guglielmi, B., Soutourina, J., Esnault, C. and Werner, M. 2007. TFIIS elongation factor and Mediator act in conjunction during transcription initiation *in vivo*. *Proc. Natl. Acad. Sci. USA* 104: 16062-16067.
9. Kim, B., Nesvizhskii, A.I., Rani, P.G., Hahn, S., Aebersold, R. and Ranish, J.A. 2007. The transcription elongation factor TFIIS is a component of RNA polymerase II preinitiation complexes. *Proc. Natl. Acad. Sci. USA* 104: 16068-16073.

CHROMOSOMAL LOCATION

Genetic locus: TCEA1 (human) mapping to 8q11.23.

PRODUCT

TCEA1 (h): 293T Lysate represents a lysate of human TCEA1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

TCEA1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive TCEA1 antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

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.