



CstF-64 (h): 293T Lysate: sc-113457

BACKGROUND

Polyadenylation of mRNA precursors is a two-step reaction that requires multiple protein factors. The first step, endonucleolytic cleavage of polyadenylation substrates, requires CstF (cleavage stimulation factor), a heterotrimer that is composed of three distinct subunits. CstF-64 contains an RNA binding domain and is responsible for the RNA binding activity of CstF. CstF-64 is expressed in all somatic cells and in pre- and postmeiotic, but not meiotic, germ cells. However, a large variant of CstF-64, called t CstF-64, is abundantly expressed in meiotic and postmeiotic cells in the testis and to a lesser extent in the brain, and promotes the germ cell pattern of polyadenylation. The gene encoding CstF-64 (designated CSTF2) maps to the X chromosome, whereas t CstF-64 is encoded by an autosomal gene. The increase in CstF-64 concentration during B cell activation switches IgM heavy chain mRNA expression from membrane-bound to secreted forms, suggesting that CstF-64 plays a key role in regulating IgM heavy chain expression during B cell differentiation.

REFERENCES

1. Takagaki, Y., Manley, J.L., MacDonald, C.C., Wilusz, J. and Shenk, T. 1990. A multisubunit factor, CstF, is required for polyadenylation of mammalian pre-mRNAs. *Genes Dev.* 4: 2112-2120.
2. Takagaki, Y., Seipelt, R.L., Peterson, M.L. and Manley, J.L. 1996. The polyadenylation factor CstF-64 regulates alternative processing of IgM heavy chain pre-mRNA during B cell differentiation. *Cell* 87: 941-952.
3. Takagaki, Y. and Manley, J.L. 1998. Levels of polyadenylation factor CstF-64 control IgM heavy chain mRNA accumulation and other events associated with B cell differentiation. *Mol. Cell* 2: 761-771.
4. Kleiman, F.E. and Manley, J.L. 1999. Functional interaction of BRCA1-associated BARD1 with polyadenylation factor CstF-50. *Science* 285: 1576-1579.
5. Wallace, A.M., Dass, B., Ravnik, S.E., Tonk, V., Jenkins, N.A., Gilbert, D.J., Copeland, N.G. and MacDonald, C.C. 1999. Two distinct forms of the 64,000 Mr protein of the cleavage stimulation factor are expressed in mouse male germ cells. *Proc. Natl. Acad. Sci. USA* 96: 6763-6768.
6. Takagaki, Y. and Manley, J.L. 2000. Complex protein interactions within the human polyadenylation machinery identify a novel component. *Mol. Cell. Biol.* 20: 1515-1525.
7. Hatton, L.S., Eloranta, J.J., Figueiredo, L.M., Takagaki, Y., Manley, J.L. and O'Hare, K. 2000. The *Drosophila* homologue of the 64 kDa subunit of cleavage stimulation factor interacts with the 77 kDa subunit encoded by the suppressor of forked gene. *Nucleic Acids Res.* 28: 520-526.
8. Dass, B., McMahon, W., Jenkins, N.A., Gilbert, D.J., Copeland, N.G. and MacDonald, C.C. 2001. The gene for a variant form of the polyadenylation protein CstF-64 is on chromosome 19 and is expressed in pachytene spermatocytes in mice. *J. Biol. Chem.* 276: 8044-8050.
9. Chennathukuzhi, V.M., Lefrancois, S., Morales, C.R., Syed, V. and Hecht, N.B. 2001. Elevated levels of the polyadenylation factor CstF-64 enhance formation of the 1kB testis brain RNA-binding protein (TB-RBP) mRNA in male germ cells. *Mol. Reprod. Dev.* 58: 460-469.

CHROMOSOMAL LOCATION

Genetic locus: CSTF2 (human) mapping to Xq22.1.

PRODUCT

CstF-64 (h): 293T Lysate represents a lysate of human CstF-64 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

CstF-64 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive CstF-64 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.