SANTA CRUZ BIOTECHNOLOGY, INC.

CPSF1 (H-300): sc-28872

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The Power to Question

BACKGROUND

Processing of the 3' end of mRNA depends on several protein factors, one of which is the cleavage and polyadenylation specificity factor (CPSF). CPSF is required for both the cleavage of the mRNA precursor and for polyadenylation. CPSF, a multisubunit factor consisting of four subunits, is localized to the nucleoplasm and is excluded from cytoplasmic and nucleolar structures in HeLa cells. CPSF recognizes the AAUAAA signal in the pre-mRNA and interacts with other proteins to facilitate both RNA cleavage and poly(A) synthesis. The largest subunit of CPSF can, by itself, bind preferentially to AAUAAA-containing RNAs and binds specifically to both the suppressor of forked subunit of the cleavage stimulatory factor (CstF) and to poly (A) polymerase. U1 snRNP-A protein (U1A) interacts with and affects the activity of CPSF by stabilizing the interaction of CPSF with the AAUAAA-containing RNAs to increase the efficiency of polyadenylation. Efficient processing of 3' core poly(A) site also requires sequences 76 nucleotides upstream of the AAUAA hexamer. The largest subunit is able to interact directly with the HIV-1 upstream element to direct a stable binding of CPSF to the pre-mRNA and enhance the efficiency of polyadenylation.

REFERENCES

1. Jenny, A., et al. 1994. Characterization of cleavage and polyadenylation specificity factor and cloning of its 100 kDa subunit. Mol. Cell. Biol. 14: 8183-8190.
2. Gilmartin, G.M., et al. 1995. CPSF recognition of an HIV-1 mRNA 3'-processing enhancer: multiple sequence contacts involved in poly(A) site definition. Genes Dev. 9: 72-83.
3. Murthy, K.G., et al. 1995. The 160 kDa subunit of human cleavage-polyadenylation specificity factor coordinates pre-mRNA 3'-end formation. Genes Dev. 9: 2672-2683.
4. Jenny, A., et al. 1995. Cloning and cDNAs encoding the 160 kDa subunit of the bovinne cleavage and polyadenylation specificity factor. Nucleic Acids Res. 23: 2629-2635.
5. Lutz, C.S., et al. 1996. Interaction between the U1 snRNP-A protein and the 160 kDa subunit of cleavage-polyadenylation specificity factor increases polyadenylation efficiency *in vitro*. Genes Dev. 10: 325-337.
6. Barabino, S.M., et al. 1997. The 30 kDa subunit of mammalian cleavage and polyadenylation specificity factor and its yeast homolog are RNA-binding zinc finger proteins. Genes Dev. 11: 1703-1716.

CHROMOSOMAL LOCATION

Genetic locus: CPSF1 (human) mapping to 8q24.3; Cpsf1 (mouse) mapping to 15 D3.

SOURCE

CPSF1 (H-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus of CPSF1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

CPSF1 (H-300) is recommended for detection of CPSF1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

CPSF1 (H-300) is also recommended for detection of CPSF1 in additional species, including equine and bovine.

Suitable for use as control antibody for CPSF1 siRNA (h): sc-35101, CPSF1 siRNA (m): sc-35102, CPSF1 shRNA Plasmid (h): sc-35101-SH, CPSF1 shRNA Plasmid (m): sc-35102-SH, CPSF1 shRNA (h) Lentiviral Particles: sc-35101-V and CPSF1 shRNA (m) Lentiviral Particles: sc-35102-V.

Molecular Weight of CPSF1: 160 kDa.

Positive Controls: BJAB whole cell lysate: sc-2207, BJAB nuclear extract: sc-2145 or Jurkat whole cell lysate: sc-2204.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Papin, C., et al. 2008. *Xenopus* Rbm9 is a novel interactor of XGld2 in the cytoplasmic polyadenylation complex. FEBS J. 275: 490-503.
2. Martin, G., et al. 2012. Genome-wide analysis of pre-mRNA 3' end processing reveals a decisive role of human cleavage factor I in the regulation of 3' UTR length. Cell Rep. 1: 753-763.
3. Zaborowska, J., et al. 2012. A novel TBP-TAF complex on RNA polymerase II-transcribed snRNA genes. Transcription 3: 92-104.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. 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 or our catalog for detailed protocols and support products.