

CPSF1 (B-5): sc-166282



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 kilodalton 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 kD 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 bovine 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 kD 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-kD 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 (B-5) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of CPSF1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

CPSF1 (B-5) is recommended for detection of CPSF1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

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.

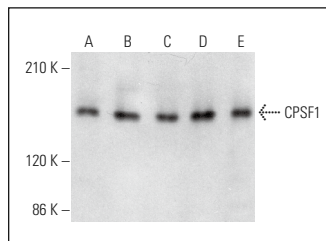
Molecular Weight of CPSF1: 160 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, K-562 whole cell lysate: sc-2203 or SUP-T1 whole cell lysate: sc-364796.

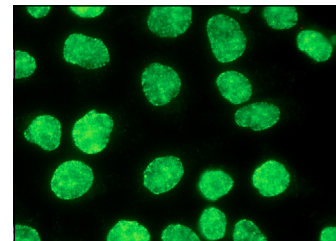
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



CPSF1 (B-5): sc-166282. Western blot analysis of CPSF1 expression in HeLa (A), K-562 (B), SK-OV-3 (C), MCF7 (D) and SUP-T1 (E) whole cell lysates.



CPSF1 (B-5): sc-166282. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Pascual, R., et al. 2020. mRNA spindle localization and mitotic translational regulation by CPEB1 and CPEB4. *RNA* 27: 291-302.

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.