SANTA CRUZ BIOTECHNOLOGY, INC.

CPSF1 (G-10): sc-166281

SANTA CRUZ BIOTECHNOLOGY

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.

CHROMOSOMAL LOCATION

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

SOURCE

CPSF1 (G-10) 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_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CPSF1 (G-10) is available conjugated to agarose (sc-166281 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166281 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166281 PE), fluorescein (sc-166281 FITC), Alexa Fluor® 488 (sc-166281 AF488), Alexa Fluor® 546 (sc-166281 AF546), Alexa Fluor® 594 (sc-166281 AF594) or Alexa Fluor® 647 (sc-166281 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166281 AF680) or Alexa Fluor® 790 (sc-166281 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CPSF1 (G-10) 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).

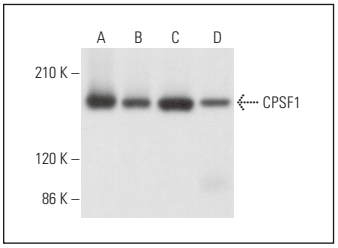
Suitable for use as control antibody for CPSF1 siRNA (h): sc-35101, CPSF1 siRNA (m): sc-35102, CPSF1 shRNA Plasmid (h): sc-35101-SH, CPSF1 shRNA Plasmid (m): sc-35102-SH, CPSF1 shRNA (h) Lentiviral Particles: sc-35101-V and CPSF1 shRNA (m) Lentiviral Particles: sc-35102-V.

Molecular Weight of CPSF1: 160 kDa.

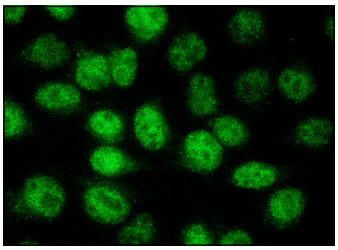
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



CPSF1 (G-10): sc-166281. Western blot analysis of CPSF1 expression in Jurkat (**A**), MCF7 (**B**) and NIH/3T3 (**C**) whole cell lysates and rat testis tissue extract (**D**).



CPSF1 (G-10): sc-166281. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Masuda, A., et al. 2020. tRIP-seq reveals repression of premature polyadenylation by co-transcriptional FUS-U1 snRNP assembly. EMBO Rep. 21: e49890.
2. Barra, J., et al. 2020. Integrator restrains paraspeckles assembly by promoting isoform switching of the lncRNA NEAT1. Sci. Adv. 6: eaaz9072.
3. Ustyantsev, I.G., et al. 2021. Identification of nucleotide sequences and some proteins involved in polyadenylation of RNA transcribed by Pol III from SINEs. RNA Biol. 18: 1475-1488.
4. Gerassimovich, Y.A., et al. 2021. Proximity-dependent biotinylation detects associations between SARS coronavirus nonstructural protein 1 and stress granule-associated proteins. J. Biol. Chem. 297: 101399.
5. Mukherjee, S., et al. 2023. Macrophage differentiation is marked by increased abundance of the mRNA 3' end processing machinery, altered poly(A) site usage, and sensitivity to the level of CstF64. Front. Immunol. 14: 1091403.
6. Kases, K., et al. 2023. The RNA-binding protein ZC3H11A interacts with the nuclear poly(A)-binding protein PABPN1 and alters polyadenylation of viral transcripts. J. Biol. Chem. 299: 104959.

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.