SANTA CRUZ BIOTECHNOLOGY, INC.

PSF (G-7): sc-374502

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Pre-mRNA splicing is a critical step in the post-translational regulation of gene expression. The process of removing intron sequences from mRNA is a two-step enzymatic reaction that requires the action of the spliceosome, a large multicomponent ribonucleoprotein complex. The polypyrimidine tract-binding protein (PTB)-associated splicing factor (PSF) is a ubiquitously expressed protein that forms a complex with PTB, also designated hnRNP I, which is required for early spliceosome formation and is essential for catalytic step II. The PSF protein contains two RNA recognition motifs (RRMs), a proline- and glutamine-rich amino terminal domain, and two carboxy-terminal nuclear localization signals. PSF is localized to the nucleus in punctate structures called speckles, which are absent from nucleoli. The localization of PSF to speckles is dependent upon the presence of the second RRM motif. PSF also can associate with the DNA binding domains (DBDs) of thyroid hormone receptors and retinoic acid receptors, where it acts as a repressor by recruiting HDACs to the DBDs. PSF is expressed in neurons during development and may be involved in neuronal differentiation and maturation. PSF is proteolytically cleaved to produce a shorter fragment in myeloid cells.

REFERENCES

1. Patton, J.G., et al. 1993. Cloning and characterization of PSF, a novel pre-mRNA splicing factor. Genes Dev. 7: 393-406.
2. Gozani, O., et al. 1994. A novel set of spliceosome-associated proteins and the essential splicing factor PSF bind stably to pre-mRNA prior to catalytic step II of the splicing reaction. EMBO J. 13: 3356-3367.

CHROMOSOMAL LOCATION

Genetic locus: SFPQ (human) mapping to 1p34.3; Sfpq (mouse) mapping to 4 D2.2.

SOURCE

PSF (G-7) is a mouse monoclonal antibody raised against amino acids 581-660 mapping near the C-terminus of PSF of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PSF (G-7) is available conjugated to agarose (sc-374502 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374502 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374502 PE), fluorescein (sc-374502 FITC), Alexa Fluor® 488 (sc-374502 AF488), Alexa Fluor® 546 (sc-374502 AF546), Alexa Fluor® 594 (sc-374502 AF594) or Alexa Fluor® 647 (sc-374502 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374502 AF680) or Alexa Fluor® 790 (sc-374502 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

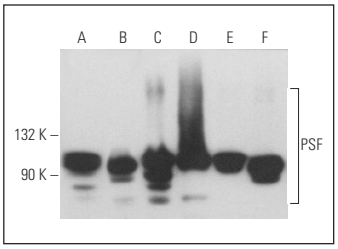
PSF (G-7) is recommended for detection of PSF of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 PSF siRNA (h): sc-38304, PSF siRNA (m): sc-38305, PSF shRNA Plasmid (h): sc-38304-SH, PSF shRNA Plasmid (m): sc-38305-SH, PSF shRNA (h) Lentiviral Particles: sc-38304-V and PSF shRNA (m) Lentiviral Particles: sc-38305-V.

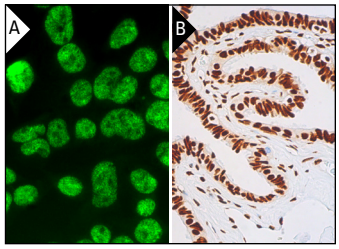
Molecular Weight of PSF: 100 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, Hep G2 nuclear extract: sc-364819 or NIH/3T3 nuclear extract: sc-2138.

DATA



PSF (G-7): sc-374502. Western blot analysis of PSF expression in MDA-MB-231 (**A**) and 3611-RF (**B**) whole cell lysates and Jurkat (**C**), Hep G2 (**D**), HeLa (**E**) and NIH/3T3 (**F**) nuclear extracts.



PSF (G-7): sc-374502. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human fallopian tube tissue showing nuclear staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Shen, W., et al. 2015. 2'-Fluoro-modified phosphorothioate oligonucleotide can cause rapid degradation of p54nrb and PSF. Nucleic Acids Res. 43: 4569-4578.
2. Flather, D., et al. 2018. Exploitation of nuclear functions by human rhinovirus, a cytoplasmic RNA virus. PLoS Pathog. 14: e1007277.
3. Suzuki, H., et al. 2019. C9-ALS/FTD-linked proline-arginine dipeptide repeat protein associates with paraspeckle components and increases paraspeckle formation. Cell Death Dis. 10: 746.
4. Malnar, M., et al. 2021. SFPQ regulates the accumulation of RNA foci and dipeptide repeat proteins from the expanded repeat mutation in C9orf72. J. Cell Sci. 134: jcs256602.
5. Zhang, L., et al. 2022. NAT10 and DDX21 proteins interact with RNase H1 and affect the performance of phosphorothioate oligonucleotides. Nucleic Acid Ther. 32: 280-299.

RESEARCH USE

For research use only, not for use in diagnostic procedures.