

# PSF (39-1): sc-101137

## 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

PSF (39-1) is a mouse monoclonal antibody raised against recombinant PSF of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

PSF (39-1) is recommended for detection of PSF 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), 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: A-431 nuclear extract: sc-2122, HeLa nuclear extract: sc-2120 or Hep G2 nuclear extract: sc-364819.

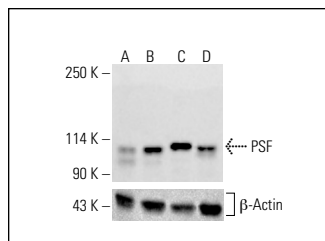
## STORAGE

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

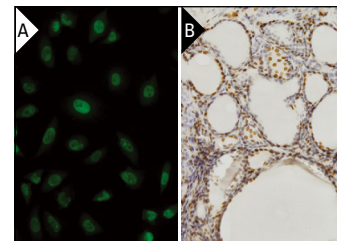
## RESEARCH USE

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

## DATA



PSF (39-1): sc-101137. Western blot analysis of PSF expression in untreated HeLa (A), chemically-treated HeLa (B), K-562 (C) and HCT-116 (D) whole cell lysates. Detection reagent used: m-IgG<sub>2a</sub> BP-HRP: sc-542731. β-Actin (C4): sc-47778 used as loading control. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



PSF (39-1): sc-101137. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing nuclear localization (A). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human thyroid nodular goiter tissue showing nuclear localization (B).

## SELECT PRODUCT CITATIONS

- Nelson, L.D., et al. 2012. Triplex DNA-binding proteins are associated with clinical outcomes revealed by proteomic measurements in patients with colorectal cancer. *Mol. Cancer* 11: 38.
- Ma, Y., et al. 2013. A feedback loop consisting of microRNA 23a/27a and the β-like globin suppressors KLF3 and SP1 regulates globin gene expression. *Mol. Cell. Biol.* 33: 3994-4007.
- Chang, S.H., et al. 2014. Alanine repeats influence protein localization in splicing speckles and paraspeckles. *Nucleic Acids Res.* 42: 13788-13798.
- Rajgor, D., et al. 2016. Identification of novel nesprin-1 binding partners and cytoplasmic matrin-3 in processing bodies. *Mol. Biol. Cell* 27: 3894-3902.
- Dall'Acqua, A., et al. 2017. CDK6 protects epithelial ovarian cancer from platinum-induced death via FOXO3 regulation. *EMBO Mol. Med.* 9: 1415-1433.
- Saud, K., et al. 2017. SFPQ associates to LSD1 and regulates the migration of newborn pyramidal neurons in the developing cerebral cortex. *Int. J. Dev. Neurosci.* 57: 1-11.
- Kumarasinghe, N., et al. 2019. Analysis of a structured intronic region of the LMP2 pre-mRNA from EBV reveals associations with human regulatory proteins and nuclear Actin. *BMC Res. Notes* 12: 33.
- Smith, E.M., et al. 2021. The mTOR regulated RNA-binding protein LARP1 requires PABPC1 for guided mRNA interaction. *Nucleic Acids Res.* 49: 458-478.
- Katano-Toki, A., et al. 2021. SFPQ associated with a co-activator for PPARγ, HELZ2, regulates key nuclear factors for adipocyte differentiation. *Biochem. Biophys. Res. Commun.* 562: 139-145.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.