

RPA194 (F-6): sc-46699

BACKGROUND

RNA polymerases transcribe nuclear genes for ribosomal RNA, thus representing ribosomal biogenesis. RNA polymerase I (Pol I) is located in the nucleolus and transcribes class I genes, which code for large ribosomal RNA. Different subunits of the Pol I transcription machinery are targets of various physiological stimuli, which suggests that multiple signaling pathways are involved in carrying out Pol I transcription. RPA40 and RPA16 are subunits of Pol I that associate with each other at an early stage of RNA polymerase I assembly. RPA40 is essential for the function and integrity of the complex and is also an essential subunit of RNA polymerase III (Pol III). RPA40, RPA16 and RPA135 encode the three subunits of RNA polymerase I, respectively. RPA194 is the largest subunit of RNA Pol I and is not a component of Pol II and Pol III.

REFERENCES

- Nogi, Y., et al. 1991. An approach for isolation of mutants defective in 35S ribosomal RNA synthesis in *Saccharomyces cerevisiae*. Proc. Natl. Acad. Sci. USA 88: 7026-7030.
- Yao, Y., et al. 1996. Mouse RNA polymerase I 16-kDa subunit able to associate with 40-kDa subunit is a homolog of yeast AC19 subunit of RNA polymerases I and III. J. Biol. Chem. 271: 32881-32885.

CHROMOSOMAL LOCATION

Genetic locus: POLR1A (human) mapping to 2p11.2; Polr1a (mouse) mapping to 6 C1.

SOURCE

RPA194 (F-6) is a mouse monoclonal antibody raised against amino acids 1-300 of RPA194 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.

APPLICATIONS

RPA194 (F-6) is recommended for detection of RPA194 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:5000), 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 RPA194 siRNA (h): sc-38244, RPA194 siRNA (m): sc-38245, RPA194 shRNA Plasmid (h): sc-38244-SH, RPA194 shRNA Plasmid (m): sc-38245-SH, RPA194 shRNA (h) Lentiviral Particles: sc-38244-V and RPA194 shRNA (m) Lentiviral Particles: sc-38245-V.

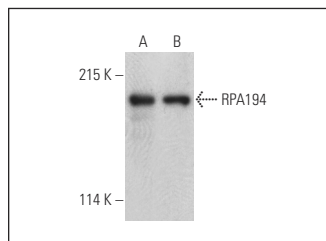
Molecular Weight of RPA194: 194 kDa.

Positive Controls: ES-2 cell lysate: sc-24674, KNRK nuclear extract: sc-2141 or HeLa whole cell lysate: sc-2200.

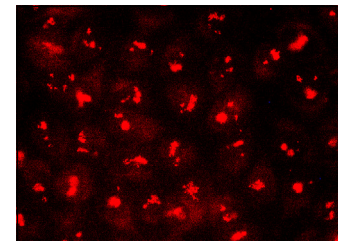
STORAGE

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

DATA



RPA194 (F-6): sc-46699. Western blot analysis of RPA194 expression in ES-2 whole cell lysate (A) and KNRK nuclear extract (B). Detection reagent used: m-IgG_{2b} BP-HRP: sc-542741.



RPA194 (F-6): sc-46699. Immunofluorescence staining of methanol-fixed HeLa cells showing nucleolar localization.

SELECT PRODUCT CITATIONS

- Zhang, Z., et al. 2013. P90^{RSK}s mediate the activation of ribosomal RNA synthesis by the hypertrophic agonist phenylephrine in adult cardiomyocytes. J. Mol. Cell. Cardiol. 59: 139-147.
- Osakabe, A., et al. 2013. Vertebrate Spt2 is a novel nucleolar histone chaperone that assists in ribosomal DNA transcription. J. Cell Sci. 126: 1323-1332.
- Coccia, M., et al. 2017. Human NFκB repressing factor acts as a stress-regulated switch for ribosomal RNA processing and nucleolar homeostasis surveillance. Proc. Natl. Acad. Sci. USA 114: 1045-1050.
- Glushonkov, O., et al. 2018. Optimized protocol for combined PALM-dSTORM imaging. Sci. Rep. 8: 8749.
- Gerber, A., et al. 2020. Gene-specific control of tRNA expression by RNA polymerase II. Mol. Cell 78: 765-778.e7.
- Liang, X.H., et al. 2021. Solid-phase separation of toxic phosphorothioate antisense oligonucleotide-protein nucleolar aggregates is cytoprotective. Nucleic Acid Ther. 31: 126-144.
- Cichocka, M., et al. 2022. The novel role of hnRNP UL1 in human cell nucleoli. Int. J. Biol. Sci. 18: 4809-4823.
- Potapova, T.A., et al. 2023. Distinct states of nucleolar stress induced by anticancer drugs. Elife 12: RP88799.

RESEARCH USE

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



See **RPA194 (C-1): sc-48385** for RPA194 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.