

# RPA 70 kDa subunit (B-6): sc-28304

## BACKGROUND

The single-stranded-DNA-binding proteins (SSBs) are essential for DNA function in prokaryotic and eukaryotic cells, mitochondria, phages and viruses. Replication protein A (RPA), a highly conserved eukaryotic protein, is a heterotrimeric SSB. RPA plays an important role in DNA replication, recombination and repair. The binding of human RPA (hRPA) to DNA involves molecular polarity in which initial hRPA binding occurs on the 5' side of an ssDNA substrate and then extends in the 3' direction to create a stably bound hRPA. RPA is a major damage-recognition protein involved in the early stages of nucleotide excision repair. It can also play a role in telomere maintenance. The RPA 70 kDa subunit binds to ssDNA and mediates interactions with many cellular and viral proteins. The DNA binding domain lies in the middle of RPA 70 kDa subunit and comprises two structurally homologous subdomains oriented in tandem. RPA contains a conserved four cysteine-type zinc-finger motif, which mediates the transition of RPA-ssDNA interaction to a stable RPA-ssDNA complex in a redox-dependent manner.

## REFERENCES

1. Erdile, L.F., et al. 1990. The primary structure of the 32 kDa subunit of human replication protein A. *J. Biol. Chem.* 265: 3177-3182.
2. Erdile, L.F., et al. 1991. Characterization of a cDNA encoding the 70-kDa single-stranded DNA-binding subunit of human replication protein A and the role of the protein in DNA replication. *J. Biol. Chem.* 266: 12090-12098.

## CHROMOSOMAL LOCATION

Genetic locus: RPA1 (human) mapping to 17p13.3; Rpa1 (mouse) mapping to 11 B5.

## SOURCE

RPA 70 kDa subunit (B-6) is a mouse monoclonal antibody raised against amino acids 317-616 of RPA 70 kDa subunit of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-28304 X, 200 µg/0.1 ml.

RPA 70 kDa subunit (B-6) is available conjugated to agarose (sc-28304 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-28304 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-28304 PE), fluorescein (sc-28304 FITC), Alexa Fluor® 488 (sc-28304 AF488), Alexa Fluor® 546 (sc-28304 AF546), Alexa Fluor® 594 (sc-28304 AF594) or Alexa Fluor® 647 (sc-28304 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-28304 AF680) or Alexa Fluor® 790 (sc-28304 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

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

## APPLICATIONS

RPA 70 kDa subunit (B-6) is recommended for detection of RPA 70 kDa subunit of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1,000), 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).

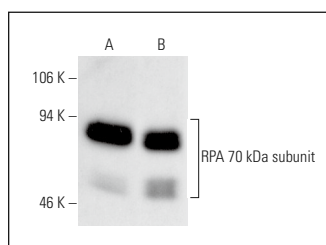
Suitable for use as control antibody for RPA 70 kDa subunit siRNA (h): sc-37163, RPA 70 kDa subunit siRNA (m): sc-38231, RPA 70 kDa subunit shRNA Plasmid (h): sc-37163-SH, RPA 70 kDa subunit shRNA Plasmid (m): sc-38231-SH, RPA 70 kDa subunit shRNA (h) Lentiviral Particles: sc-37163-V and RPA 70 kDa subunit shRNA (m) Lentiviral Particles: sc-38231-V.

RPA 70 kDa subunit (B-6) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

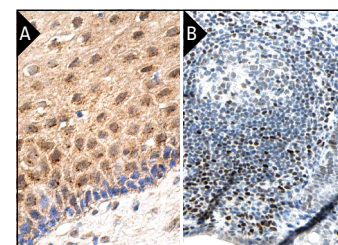
Molecular Weight of RPA 70 kDa subunit: 70 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, A-431 nuclear extract: sc-2122 or NIH/3T3 nuclear extract: sc-2138.

## DATA



RPA 70 kDa subunit (B-6): sc-28304. Western blot analysis of RPA 70 kDa subunit expression in HeLa (A) and NIH/3T3 (B) nuclear extracts.



RPA 70 kDa subunit (B-6): sc-28304. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cervix tissue showing nuclear and cytoplasmic staining of squamous epithelial cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing nuclear staining of lymphoid tissue. Kindly provided by The Swedish Human Protein Atlas (HPA) program (B).

## SELECT PRODUCT CITATIONS

1. Luijsterburg, M.S., et al. 2010. Stochastic and reversible assembly of a multiprotein DNA repair complex ensures accurate target site recognition and efficient repair. *J. Cell Biol.* 189: 445-463.
2. Zhou, H., et al. 2023. UBQLN1 deficiency mediates telomere shortening and IPF through interacting with RPA1. *PLoS Genet.* 19: e1010856.
3. Liu, J., et al. 2023. RBMX involves in telomere stability maintenance by regulating TERRA expression. *PLoS Genet.* 19: e1010937.
4. Zhang, C., et al. 2023. BMAL1 collaborates with CLOCK to directly promote DNA double-strand break repair and tumor chemoresistance. *Oncogene* 42: 967-979.

## RESEARCH USE

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