

# RPA 70 kDa subunit (N-19): sc-46504

## 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.
3. Bochkarev, A., et al. 1997. Structure of the single-stranded-DNA-binding domain of replication protein A bound to DNA. *Nature* 385: 176-181.
4. Kim, J., et al. 2000. Replication protein a 32 kDa subunit (RPA 32) binds the SH2 domain of Stat3 and regulates its transcriptional activity. *Cell Biol. Int.* 24: 467-473.
5. Mer, G., et al. 2000. Structural basis for the recognition of DNA repair proteins UNG2, XPA, and Rad52 by replication factor RPA. *Cell* 103: 449-456.
6. Wang, M., et al. 2000. RPA stabilizes the XPA-damaged DNA complex through protein-protein interaction. *Biochemistry* 39: 64-69.

## CHROMOSOMAL LOCATION

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

## SOURCE

RPA 70 kDa subunit (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of RPA1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-46504 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-46504 X, 200 µg/0.1 ml.

## APPLICATIONS

RPA 70 kDa subunit (N-19) is recommended for detection of RPA 70 kDa subunit of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

RPA 70 kDa subunit (N-19) is also recommended for detection of RPA 70 kDa subunit in additional species, including equine, canine, bovine and porcine.

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 (N-19) 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, NIH/3T3 nuclear extract: sc-2138 or A-431 nuclear extract: sc-2122.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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.

## PROTOCOLS

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



Try **RPA 70 kDa subunit (H-7): sc-48425** or **RPA 70 kDa subunit (B-6): sc-28304**, our highly recommended monoclonal alternatives to RPA 70 kDa subunit (N-19). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **RPA 70 kDa subunit (H-7): sc-48425**.