SANTA CRUZ BIOTECHNOLOGY, INC.

RPA 14 kDa subunit (H-58): sc-98948

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The Power to Question

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 that is composed of three subunits, designated RPA 14 kDa (also known as RPA3), RPA 32 kDa and RPA 70 kDa. Together, these subunits play an important role in DNA replication, recombination and repair. RPA is one of the major damage-recognition structures involved in the early stage of nucleotide excision repair and may play a role in telomere maintenance. 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. The RPA 14 kDa subunit localizes to the nucleus and is the smallest component of the RPA complex, functioning with the other subunits to regulate various aspects of DNA metabolism.

REFERENCES

1. Umbricht, C.B., et al. 1993. Cloning, overexpression and genomic mapping of the 14 kDa subunit of human replication protein A. J. Biol. Chem. 268: 6131-6138.
2. Umbricht, C.B., et al. 1994. High resolution genomic mapping of the three human replication protein A genes (RPA1, RPA2 and RPA3). Genomics 20: 249-257.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 179837. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Zou, L., et al. 2003. Sensing DNA damage through ATRIP recognition of RPA-ssDNA complexes. Science 300: 1542-1548.
5. Dodson, G.E., et al. 2004. DNA replication defects, spontaneous DNA damage, and ATM-dependent checkpoint activation in replication protein A-deficient cells. J. Biol. Chem. 279: 34010-34014.
6. Chaudhuri, J., et al. 2004. Replication protein A interacts with AID to promote deamination of somatic hypermutation targets. Nature 430: 992-998.
7. Michiels, S., et al. 2007. Polymorphism discovery in 62 DNA repair genes and haplotype associations with risks for lung and head and neck cancers. Carcinogenesis 28: 1731-1739.

CHROMOSOMAL LOCATION

Genetic locus: RPA3 (human) mapping to 7p21.3; Rpa3 (mouse) mapping to 6 A1.

SOURCE

RPA 14 kDa subunit (H-58) is a rabbit polyclonal antibody raised against amino acids 24-81 mapping within an internal region of RPA 14 kDa subunit of human origin.

STORAGE

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

PRODUCT

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

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-98948 X, 200 µg/0.1 ml.

APPLICATIONS

RPA 14 kDa subunit (H-58) is recommended for detection of RPA 14 kDa subunit 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

RPA 14 kDa subunit (H-58) is also recommended for detection of RPA 14 kDa subunit in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for RPA 14 kDa subunit siRNA (h): sc-45476, RPA 14 kDa subunit siRNA (m): sc-45713, RPA 14 kDa subunit shRNA Plasmid (h): sc-45476-SH, RPA 14 kDa subunit shRNA Plasmid (m): sc-45713-SH, RPA 14 kDa subunit shRNA (h) Lentiviral Particles: sc-45476-V and RPA 14 kDa subunit shRNA (m) Lentiviral Particles: sc-45713-V.

RPA 14 kDa subunit (H-58) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of RPA 14 kDa subunit: 14 kDa.

Positive Controls: NIH/3T3 nuclear extract: sc-2138 or HL-60 whole cell lysate: sc-2209.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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