SANTA CRUZ BIOTECHNOLOGY, INC.

RPA 32 kDa subunit (h3): 293 Lysate: sc-158938

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 hetero-trimeric 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 a 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 C-terminus of RPA 32 can specfically interact with the DNA repair enzyme UNG2 and repair factors XPA and Rad52, each of which functions in a different repair pathway. In addition, RPA 32 binds specifically to the SH2 domain of Stat3 *in vivo,* and overexpression of RPA 32 corresponds to the augmented growth factor-stimulated tyrosine phosphorylation and transcription activities of Stat3.

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 p32) 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.
7. Iftode, C., et al. 2000. 5'→3' molecular polarity of human replication protein (hRPA) binding to pseudo-origin DNA substrates. Biochemistry 39: 11970-11981.
8. Smith, J., et al. 2000. Characterization of genetic interactions with RFA1: the role of RPA in DNA replication and telomere maintenance. Biochimie 82: 71-78.

CHROMOSOMAL LOCATION

Genetic locus: RPA2 (human) mapping to 1p35.3.

PRODUCT

RPA 32 kDa subunit (h3): 293 Lysate represents a lysate of human RPA 32 kDa subunit transfected 293 cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

RPA 32 kDa subunit (h3): 293 Lysate is suitable as a Western Blotting positive control for human reactive RPA 32 kDa subunit antibodies. Recommended use: 10-20 µl per lane.

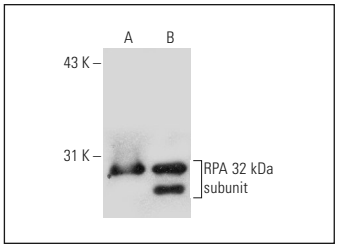
Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

RPA 32 kDa subunit (9H8): sc-56770 is recommended as a positive control antibody for Western Blot analysis of enhanced human RPA 32 kDa subunit expression in RPA 32 kDa subunit transfected 293 cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



RPA 32 kDa subunit (9H8): sc-56770. Western blot analysis of RPA 32 kDa subunit expression in non-transfected: sc-110760 (**A**) and human RPA 32 kDa subunit transfected: sc-158938 (**B**) 293 whole cell lysates.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.