SANTA CRUZ BIOTECHNOLOGY, INC.

RPA 70 kDa subunit (H-7): sc-48425

SANTA CRUZ BIOTECHNOLOGY

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 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 an ssDNA sub-strate 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.

CHROMOSOMAL LOCATION

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

SOURCE

RPA 70 kDa subunit (H-7) 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_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RPA 70 kDa subunit (H-7) is available conjugated to agarose (sc-48425 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-48425 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-48425 PE), fluorescein (sc-48425 FITC), Alexa Fluor® 488 (sc-48425 AF488), Alexa Fluor® 546 (sc-48425 AF546), Alexa Fluor® 594 (sc-48425 AF594) or Alexa Fluor® 647 (sc-48425 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-48425 AF680) or Alexa Fluor® 790 (sc-48425 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

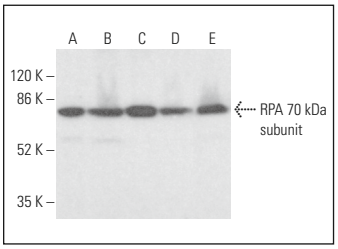
RPA 70 kDa subunit (H-7) is recommended for detection of RPA 70 kDa subunit of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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.

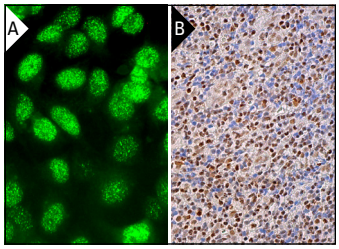
Molecular Weight of RPA 70 kDa subunit: 70 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, SW480 nuclear extract: sc-2155 or NIH/3T3 nuclear extract: sc-2138.

DATA



RPA 70 kDa subunit (H-7): sc-48425. Western blot analysis of RPA 70 kDa subunit expression in HeLa (**A**), NIH/3T3 (**B**), SW480 (**C**) and K-562 (**D**) nuclear extracts and MCF7 whole cell lysate (**E**).



RPA 70 kDa subunit (H-7): sc-48425. Immunofluores-cence staining of formalin-fixed Hep G2 cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil tissue showing nuclear staining of cells in non-germinal center (**B**).

SELECT PRODUCT CITATIONS

1. Gao, Z., et al. 2012. Determination of protein interactome of transcription factor Sox2 in embryonic stem cells engineered for inducible expression of four reprogramming factors. J. Biol. Chem. 287: 11384-11397.
2. Fujita, K., et al. 2017. Developmental YAPδC determines adult pathology in a model of spinocerebellar ataxia type 1. Nat. Commun. 8: 1864.
3. Coulombe, P., et al. 2019. The ORC ubiquitin ligase OBI1 promotes DNA replication origin firing. Nat. Commun. 10: 2426.
4. Liu, P., et al. 2020. NRF2 regulates the sensitivity of human NSCLC cells to cystine deprivation-induced ferroptosis via FOCAD-FAK signaling pathway. Redox Biol. 37: 101702.
5. Yu, E.Y., et al. 2021. Reciprocal impacts of telomerase activity and ADRN/MES differentiation state in neuroblastoma tumor biology. Commun. Biol. 4: 1315.

RESEARCH USE

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