SANTA CRUZ BIOTECHNOLOGY, INC.

RFC1 (B-5): sc-271656

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Replication factor C (RFC) is an essential DNA polymerase accessory protein that is required for numerous aspects of DNA metabolism including DNA replication, DNA repair, and telomere metabolism. RFC is a heteropentameric complex that recognizes a primer on a template DNA, binds to a primer terminus, and loads proliferating cell nuclear antigen (PCNA) onto DNA at primer-template junctions in an ATP-dependent reaction. All five of the RFC subunits share a set of related sequences (RFC boxes) that include nucleotide-binding consensus sequences. Four of the five RFC genes (including RFC1, RFC2, RFC3, and RFC4) have consensus ATP-binding motifs. The small RFC proteins, RFC2, RFC3, RFC4 and RFC5, interact with Rad24, whereas the RFC1 subunit does not. RFC1 is a substrate for caspase-3 *in vitro* and is cleaved by a caspase-3-like protease during FAS-mediated apoptosis. In addition, phosphorylation of the PCNA binding domain of RFC1 by Ca^{2+}/calmodulin-dependent protein kinase II (CaMKII) inhibits DNA synthesis. The human RFC1 gene maps to chromosome 4p14 and encodes the RFC1 subunit.

CHROMOSOMAL LOCATION

Genetic locus: RFC1 (human) mapping to 4p14.

SOURCE

RFC1 (B-5) is a mouse monoclonal antibody raised against amino acids 848-1147 mapping at the C-terminus of RFC1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RFC1 (B-5) is available conjugated to agarose (sc-271656 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271656 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271656 PE), fluorescein (sc-271656 FITC), Alexa Fluor® 488 (sc-271656 AF488), Alexa Fluor® 546 (sc-271656 AF546), Alexa Fluor® 594 (sc-271656 AF594) or Alexa Fluor® 647 (sc-271656 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271656 AF680) or Alexa Fluor® 790 (sc-271656 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

RFC1 (B-5) is recommended for detection of RFC1 of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for RFC1 siRNA (h): sc-37631, RFC1 shRNA Plasmid (h): sc-37631-SH and RFC1 shRNA (h) Lentiviral Particles: sc-37631-V.

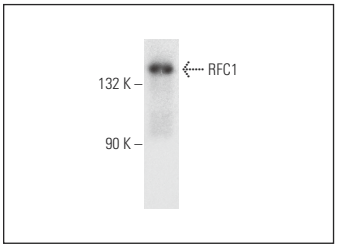
Molecular Weight of RFC1: 140 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

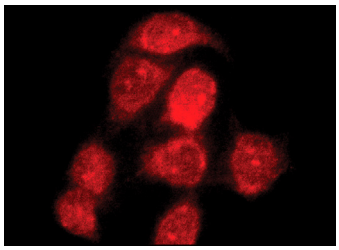
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



RFC1 (B-5): sc-271656. Western blot analysis of RFC1 expression in HeLa nuclear extract.



RFC1 (B-5): sc-271656. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Kim, S., et al. 2020. ATAD5 restricts R-loop formation through PCNA unloading and RNA helicase maintenance at the replication fork. Nucleic Acids Res. 48: 7218-7238.
2. Hoffmann, S., et al. 2020. FAM111 protease activity undermines cellular fitness and is amplified by gain-of-function mutations in human disease. EMBO Rep. 21: e50662.
3. Park, S.H., et al. 2021. Timely termination of repair DNA synthesis by ATAD5 is important in oxidative DNA damage-induced single-strand break repair. Nucleic Acids Res. 49: 11746-11764.

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 for detailed protocols and support products.