

RFC1 (C-15): sc-21878

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 heteropenta-meric 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 Ca²⁺/calmodulin-dependent protein kinase II (CaMKII) inhibits DNA synthesis. The human RFC1 gene maps to chromosome 4p14 and encodes the RFC1 subunit.

REFERENCES

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2. Rheaume, E., et al. 1997. The large subunit of replication factor C is a substrate for caspase-3 *in vitro* and is cleaved by a caspase-3-like protease during Fas-mediated apoptosis. *Embo J.* 16: 6346-6354.
3. Maga, G., et al. 1997. Phosphorylation of the PCNA binding domain of the large subunit of replication factor C by Ca²⁺/calmodulin-dependent protein kinase II inhibits DNA synthesis. *Biochem.* 36: 5300-5310.
4. Beckwith, W.H., et al. 1998. Destabilized PCNA trimers suppress defective Rfc1 proteins *in vitro* and *in vivo*. *Biochem.* 37: 3711-3722.
5. Noskov, V.N., et al. 1998. The RFC2 gene, encoding the third-largest subunit of the replication factor C complex, is required for an S-phase checkpoint in *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* 18: 4914-4923.
6. Green, C.M., et al. 2000. A novel Rad24 checkpoint protein complex closely related to replication factor C. *Curr. Biol.* 10: 39-42.
7. Schmidt, S.L., et al. 2001. ATP utilization by yeast replication factor C. IV. RFC ATP-binding mutants show defects in DNA replication, DNA repair, and checkpoint regulation. *J. Biol. Chem.* 276: 34792-34800.

CHROMOSOMAL LOCATION

Genetic locus: RFC1 (human) mapping to 4p14; Rfc1 (mouse) mapping to 5 C3.1.

SOURCE

RFC1 (C-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of RFC1 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.

Blocking peptide available for competition studies, sc-21878 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

RFC1 (C-15) is recommended for detection of RFC1 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).

RFC1 (C-15) is also recommended for detection of RFC1 in additional species, including equine, canine, porcine and avian.

Suitable for use as control antibody for RFC1 siRNA (h): sc-37631, RFC-1 siRNA (m): sc-37632, RFC1 shRNA Plasmid (h): sc-37631-SH, RFC-1 shRNA Plasmid (m): sc-37632-SH, RFC1 shRNA (h) Lentiviral Particles: sc-37631-V and RFC-1 shRNA (m) Lentiviral Particles: sc-37632-V.

Molecular Weight of RFC1: 140 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

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.

RESEARCH USE

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

PROTOCOLS

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


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Try **RFC1 (B-5): sc-271656**, our highly recommended monoclonal alternative to RFC1 (C-15).