

RFC3 (G-10): sc-390293

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 (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. RFC3 is required not only for DNA replication, but also for replication and damage checkpoint controls, probably functioning as a checkpoint sensor. The human RFC3 gene maps to chromosome 13q13.2 and encodes the RFC3 subunit. In *Saccharomyces cerevisiae*, purified RFC3 has an ATPase activity that is markedly stimulated by single-stranded DNA but not by double-stranded DNA or RNA.

REFERENCES

- Li, X., et al. 1994. Molecular cloning and expression of the *Saccharomyces cerevisiae* RFC3 gene, an essential component of replication factor C. Proc. Natl. Acad. Sci. USA 91: 868-872.
- Cullmann, G., et al. 1995. Characterization of the five replication factor C genes of *Saccharomyces cerevisiae*. Mol. Cell. Biol. 15: 4661-4671.

CHROMOSOMAL LOCATION

Genetic locus: RFC3 (human) mapping to 13q13.2; Rfc3 (mouse) mapping to 5 G3.

SOURCE

RFC3 (G-10) is a mouse monoclonal antibody raised against amino acids 157-356 mapping at the C-terminus of RFC3 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.

RFC3 (G-10) is available conjugated to agarose (sc-390293 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390293 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390293 PE), fluorescein (sc-390293 FITC), Alexa Fluor® 488 (sc-390293 AF488), Alexa Fluor® 546 (sc-390293 AF546), Alexa Fluor® 594 (sc-390293 AF594) or Alexa Fluor® 647 (sc-390293 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390293 AF680) or Alexa Fluor® 790 (sc-390293 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

RFC3 (G-10) is recommended for detection of RFC3 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

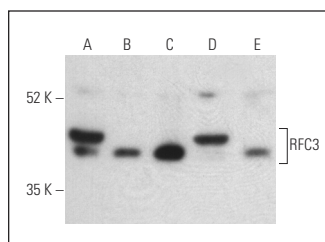
RFC3 (G-10) is also recommended for detection of RFC3 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for RFC3 siRNA (h): sc-37635, RFC3 siRNA (m): sc-37636, RFC3 shRNA Plasmid (h): sc-37635-SH, RFC3 shRNA Plasmid (m): sc-37636-SH, RFC3 shRNA (h) Lentiviral Particles: sc-37635-V and RFC3 shRNA (m) Lentiviral Particles: sc-37636-V.

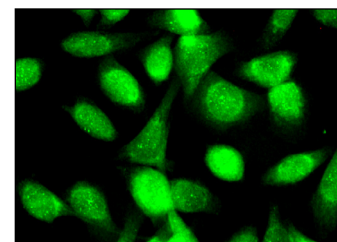
Molecular Weight of RFC3: 38 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, U-698-M whole cell lysate: sc-364799 or RT-4 whole cell lysate: sc-364257.

DATA



RFC3 (G-10): sc-390293. Western blot analysis of RFC3 expression in MCF7 (A), GA-10 (B), Jurkat (C), RT-4 (D) and U-698-M (E) whole cell lysates. Detection reagent used: m-IgG_{2a} BP-HRP: sc-542731.



RFC3 (G-10): sc-390293. Immunofluorescence staining of formalin-fixed SW480 cells showing nuclear localization.

SELECT PRODUCT CITATIONS

- Yao, Z., et al. 2015. shRNA-mediated silencing of the RFC3 gene suppresses hepatocellular carcinoma cell proliferation. Int. J. Mol. Med. 36: 1393-1399.
- Zhou, J., et al. 2018. Downregulation of hsa_circ_0011946 suppresses the migration and invasion of the breast cancer cell line MCF-7 by targeting RFC3. Cancer Manag. Res. 10: 535-544.
- Dai, L., et al. 2018. Modulation of protein-interaction states through the cell cycle. Cell 173: 1481-1494.e13.
- Gong, S., et al. 2019. RFC3 induces epithelial-mesenchymal transition in lung adenocarcinoma cells through the Wnt/β-catenin pathway and possesses prognostic value in lung adenocarcinoma. Int. J. Mol. Med. 44: 2276-2288.
- Wang, S., et al. 2020. Mithramycin suppresses DNA damage repair via targeting androgen receptor in prostate cancer. Cancer Lett. 488: 40-49.

RESEARCH USE

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