SANTA CRUZ BIOTECHNOLOGY, INC.

RFC2 siRNA (m): sc-37634

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. RFC2, the third-largest subunit of the RFC complex, exhibits ATP binding which makes it important for both DNA replication and checkpoint function. The human RFC2 gene maps to chromosome 7q11.23 and encodes the RFC2 subunit. RFC2 has been associated with Williams-Beuren syndrome, which is a rare multi-system developmental disorder caused by the deletion of contiguous genes at 7q11.23.

REFERENCES

1. Cullmann, G., et al. 1995. Characterization of the five replication factor C genes of *Saccharomyces cerevisiae*. Mol. Cell. Biol. 15: 4661-4671.
2. Osborne, L.R., et al. 1996. Identification of genes from a 500-kb region at 7q11.23 that is commonly deleted in Williams syndrome patients. Genomics 36: 328-336.
3. Beckwith, W.H., et al. 1998. Destabilized PCNA trimers suppress defective RFC1 proteins *in vivo* and *in vitro*. Biochemistry 37: 3711-3722.
4. 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.
5. Green, C.M., et al. 2000. A novel Rad24 checkpoint protein complex closely related to replication factor C. Curr. Biol. 10: 39-42.
6. 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: Rfc2 (mouse) mapping to 5 G2.

PRODUCT

RFC2 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RFC2 shRNA Plasmid (m): sc-37634-SH and RFC2 shRNA (m) Lentiviral Particles: sc-37634-V as alternate gene silencing products.

For independent verification of RFC2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-37634A, sc-37634B and sc-37634C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

RFC2 siRNA (m) is recommended for the inhibition of RFC2 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RFC2 gene expression knockdown using RT-PCR Primer: RFC2 (m)-PR: sc-37634-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.