

# FANCI siRNA (m): sc-105350

## BACKGROUND

Fanconi anemia (FA) is an autosomal recessive disorder characterized by bone marrow failure, birth defects and chromosomal instability. At the cellular level, FA is characterized by spontaneous chromosomal breakage and a unique hypersensitivity to DNA cross-linking agents. FANCI (Fanconi anemia, complementation group I), also known as KIAA1794, is a 1,328 amino acid protein that localizes to the nucleus and is subject to monoubiquitination and DNA damage-dependent phosphorylation. Interacting directly with FANCD2, FANCI is required for the maintenance of chromosomal stability and is also involved in DNA recombination and repair in response to double-strand breaks and DNA cross-links. Defects in the gene encoding FANCI are associated with the pathogenesis of FA. FANCI is expressed as four alternatively spliced isoforms and is encoded by a gene that maps to human chromosome 15.

## REFERENCES

1. Nagase, T., et al. 2001. Prediction of the coding sequences of unidentified human genes. XX. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 8: 85-95.
2. Smogorzewska, A., et al. 2007. Identification of the FANCI protein, a monoubiquitinated FANCD2 paralog required for DNA repair. Cell 129: 289-301.
3. Dorsman, J.C., et al. 2007. Identification of the Fanconi anemia complementation group I gene, FANCI. Cell. Oncol. 29: 211-218.
4. Sims, A.E., et al. 2007. FANCI is a second monoubiquitinated member of the Fanconi anemia pathway. Nat. Struct. Mol. Biol. 14: 564-567.
5. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611360. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Alpi, A.F., et al. 2008. Mechanistic insight into site-restricted monoubiquitination of FANCD2 by Ube2t, FANCL, and FANCI. Mol. Cell 32: 767-777.
7. Ishiai, M., et al. 2008. FANCI phosphorylation functions as a molecular switch to turn on the Fanconi anemia pathway. Nat. Struct. Mol. Biol. 15: 1138-1146.

## CHROMOSOMAL LOCATION

Genetic locus: Fanci (mouse) mapping to 7 D3.

## PRODUCT

FANCI 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see FANCI shRNA Plasmid (m): sc-105350-SH and FANCI shRNA (m) Lentiviral Particles: sc-105350-V as alternate gene silencing products.

For independent verification of FANCI (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-105350A, sc-105350B and sc-105350C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

FANCI siRNA (m) is recommended for the inhibition of FANCI 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  $\mu$ M in 66  $\mu$ l. 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 FANCI gene expression knockdown using RT-PCR Primer: FANCI (m)-PR: sc-105350-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.