

# FANCC siRNA (h): sc-35354

## BACKGROUND

Fanconi anemia (FA) is an autosomal recessive disorder characterized by bone marrow failure, birth defects and chromosomal instability. The FA Group C complementation group gene encodes the protein FANCC, which is located in both cytoplasmic and nuclear compartments. FANCC is expressed in a cell cycle-dependent manner, with the lowest levels at the G<sub>1</sub>/S boundary and the highest levels in the M-phase. The FANCC protein interacts with other FA complementation group proteins as well as non-FA proteins. A human  $\alpha$  spectrin II (designated aSp1s) acts as a scaffold to enhance interactions between FANCC and FANCA to form a nuclear complex. Another binding partner of FANCC is the BTB/POZ domain containing protein FAZF, which is a transcriptional repressor. In hematopoietic cells expressing mutant FANCC, PKR is constitutively phosphorylated and has increased binding affinity for double-stranded RNA, which suggests that FANCC indirectly suppresses the activity of PKR. These cells are also apoptotic and are hypersensitive to IFN $\gamma$  and TNF $\alpha$ . In addition, FANCC protein is involved in the activation of STAT1 through receptors for at least three hematopoietic growth and survival factors.

## REFERENCES

1. Hoatlin, M.E., et al. 1999. A novel BTB/POZ transcriptional repressor protein interacts with the Fanconi anemia group C protein and PLZF. *Blood* 94: 3737-3747.
2. McMahon, L.W., et al. 1999. Human  $\alpha$  spectrin II and the Fanconi anemia proteins FANCA and FANCC interact to form a nuclear complex. *J. Biol. Chem.* 274: 32904-32908.

## CHROMOSOMAL LOCATION

Genetic locus: FANCC (human) mapping to 9q22.32.

## PRODUCT

FANCC siRNA (h) 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 FANCC shRNA Plasmid (h): sc-35354-SH and FANCC shRNA (h) Lentiviral Particles: sc-35354-V as alternate gene silencing products.

For independent verification of FANCC (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35354A, sc-35354B and sc-35354C.

## 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

FANCC siRNA (h) is recommended for the inhibition of FANCC expression in human 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.

## GENE EXPRESSION MONITORING

FANCC (6E7): sc-293308 is recommended as a control antibody for monitoring of FANCC gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor FANCC gene expression knockdown using RT-PCR Primer: FANCC (h)-PR: sc-35354-PR (20  $\mu$ l, 422 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Kumari, U., et al. 2014. Evidence of mitochondrial dysfunction and impaired ROS detoxifying machinery in Fanconi anemia cells. *Oncogene* 33: 165-172.

## 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.