

## FANCB siRNA (m): sc-145062

### 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. FANCB (Fanconi anemia, complementation group B), also known as FACB, FA2 or FAB, is an 859 amino acid protein that exists as a component of the multi-subunit FA complex, which is composed of several different FANC proteins. Localized to the nucleus, FANCB functions as a DNA repair protein that is required for the ubiquitination of FANCD2 and helps to ensure proper DNA recombination. Defects in the gene encoding FANCB are the cause of Fanconi anemia complementation group B (FANCB), Fanconi anemia (FA) and X-linked VACTERL-H (XVACTERL-H), all of which are associated with chromosomal instability.

### REFERENCES

1. Joenje, H., Oostra, A.B., Wijker, M., di Summa, F.M., van Berkel, C.G., Rooimans, M.A., Ebell, W., van Weel, M., Pronk, J.C., Buchwald, M. and Arwert, F. 1997. Evidence for at least eight Fanconi anemia genes. *Am. J. Hum. Genet.* 61: 940-944.
2. Meetei, A.R., Levitus, M., Xue, Y., Medhurst, A.L., Zwaan, M., Ling, C., Rooimans, M.A., Bier, P., Hoatlin, M., Pals, G., de Winter, J.P., Wang, W. and Joenje, H. 2004. X-linked inheritance of Fanconi anemia complementation group B. *Nat. Genet.* 36: 1219-1224.
3. Fei, P., Yin, J. and Wang, W. 2005. New advances in the DNA damage response network of Fanconi anemia and BRCA proteins. FAAP95 replaces BRCA2 as the true FANCB protein. *Cell Cycle* 4: 80-86.
4. Meetei, A.R., Medhurst, A.L., Ling, C., Xue, Y., Singh, T.R., Bier, P., Steltenpool, J., Stone, S., Dokal, I., Mathew, C.G., Hoatlin, M., Joenje, H., de Winter, J.P. and Wang, W. 2005. A human ortholog of archaeal DNA repair protein Hef is defective in Fanconi anemia complementation group M. *Nat. Genet.* 37: 958-963.
5. Holden, S.T., Cox, J.J., Kesterton, I., Thomas, N.S., Carr, C. and Woods, C.G. 2006. Fanconi anaemia complementation group B presenting as X linked VACTERL with hydrocephalus syndrome. *J. Med. Genet.* 43: 750-754.
6. Nomura, Y., Adachi, N. and Koyama, H. 2007. Human Mus81 and FANCB independently contribute to repair of DNA damage during replication. *Genes Cells* 12: 1111-1122.
7. García, M.J., Fernández, V., Osorio, A., Barroso, A., Lloret, G., Lázaro, C., Blanco, I., Caldes, T., de la Hoya, M., Ramón Y Cajal, T., Alonso, C., Tejada, M.I., San Román, C., Robles-Díaz, L., Urioste, M. and Benítez, J. 2009. Analysis of FANCB and FANCN/PALB2 Fanconi anemia genes in BRCA1/2-negative Spanish breast cancer families. *Breast Cancer Res. Treat.* 113: 545-551.

### CHROMOSOMAL LOCATION

Genetic locus: Fanch (mouse) mapping to X F5.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

### PRODUCT

FANCB 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 FANCB shRNA Plasmid (m): sc-145062-SH and FANCB shRNA (m) Lentiviral Particles: sc-145062-V as alternate gene silencing products.

For independent verification of FANCB (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-145062A, sc-145062B and sc-145062C.

### 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

FANCB siRNA (m) is recommended for the inhibition of FANCB 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 FANCB gene expression knockdown using RT-PCR Primer: FANCB (m)-PR: sc-145062-PR (20  $\mu$ l, 561 bp). 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.