SANTA CRUZ BIOTECHNOLOGY, INC.

SFR1 siRNA (h): sc-90421

BACKGROUND

SFR1 (SWI5-dependent recombination repair 1), also known as MEI5 (meiosis protein 5 homolog), is a 245 amino acid nuclear protein that is widely expressed and belongs to the SFR1/MEI5 family. As a member of the SWI5-SFR1 complex, a complex which is important for double-strand break repair, SFR1 weakly interacts with Rad51. SFR1 exists as three alternatively spliced isoforms and is encoded by a gene that maps to human chromosome 10q25.1. Chromosome 10 contains over 800 genes and 135 million nucleotides, making up nearly 4.5% of the human genome. PTEN is an important tumor suppressor gene located on chromosome 10 and, when defective, causes a genetic predisposition to cancer development known as Cowden syndrome. The chromosome 10 encoded gene ERCC6 is important for DNA repair and is linked to Cockayne syndrome which is characterized by extreme photosensitivity and premature aging.

REFERENCES

1. Troelstra, C., Landsvater, R.M., Wiegant, J., van der Ploeg, M., Viel, G., Buys, C.H. and Hoeijmakers, J.H. 1992. Localization of the nucleotide excision repair gene ERCC6 to human chromosome 10q11-q21. Genomics 12: 745-749.
2. Gubin, A.N., Njoroge, J.M., Bouffard, G.G. and Miller, J.L. 1999. Gene expression in proliferating human erythroid cells. Genomics 59: 168-177.
3. Cho, M.Y., Kim, H.S., Eng, C., Kim, D.S., Kang, S.J., Eom, M., Yi, S.Y. and Bronner, M.P. 2008. First report of ovarian dysgerminoma in Cowden syndrome with germline PTEN mutation and PTEN-related 10q loss of tumor heterozygosity. Am. J. Surg. Pathol. 32: 1258-1264.
4. Yin, Y. and Shen, W.H. 2008. PTEN: a new guardian of the genome. Oncogene 27: 5443-5453.
5. Laugel, V., Dalloz, C., Durand, M., Sauvanaud, F., Kristensen, U., Vincent, M.C., Pasquier, L., Odent, S., Cormier-Daire, V., Gener, B., Tobias, E.S., Tolmie, J.L., Martin-Coignard, D., Drouin-Garraud, V., Heron, D., et al. 2010. Mutation update for the CSB/ERCC6 and CSA/ERCC8 genes involved in Cockayne syndrome. Hum. Mutat. 31: 113-126.
6. Akamatsu, Y. and Jasin, M. 2010. Role for the mammalian Swi5-Sfr1 complex in DNA strand break repair through homologous recombination. PLoS Genet. 6: e1001160.
7. Yuan, J. and Chen, J. 2011. The role of the human SWI5-MEI5 complex in homologous recombination repair. J. Biol. Chem. 286: 9888-9893.
8. Qing, Y., Yamazoe, M., Hirota, K., Dejsuphong, D., Sakai, W., Yamamoto, K.N., Bishop, D.K., Wu, X. and Takeda, S. 2011. The epistatic relationship between BRCA2 and the other RAD51 mediators in homologous recombination. PLoS Genet. 7: e1002148.

CHROMOSOMAL LOCATION

Genetic locus: SFR1 (human) mapping to 10q25.1.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

SFR1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SFR1 shRNA Plasmid (h): sc-90421-SH and SFR1 shRNA (h) Lentiviral Particles: sc-90421-V as alternate gene silencing products.

For independent verification of SFR1 (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-90421A, sc-90421B and sc-90421C.

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

SFR1 siRNA (h) is recommended for the inhibition of SFR1 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 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 SFR1 gene expression knockdown using RT-PCR Primer: SFR1 (h)-PR: sc-90421-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.