

BRCA2 siRNA (m): sc-29826

BACKGROUND

In 1990, a breast cancer susceptibility gene designated BRCA1 was localized to chromosome 17q. Mutations within this gene are believed to account for approximately 45% of families with high incidence of breast cancer and at least 80% of families with increased incidence of both early-onset breast cancer and ovarian cancer. A second breast cancer susceptibility gene, BRCA2 (breast cancer 2, early onset), located on chromosome 13q12.3, also confers a high incidence of breast cancer but, unlike BRCA1, does not confer a substantially elevated risk of ovarian cancer. Both BRCA1 and BRCA2 play a role in the maintenance of genome stability, particularly in the homologous recombination pathway for double-strand DNA repair. BRCA2 is regarded as a tumor suppressor gene; tumors with BRCA2 mutations exhibit loss of heterozygosity (LOH) of the wildtype allele. The protein encoded by the BRCA2 gene contains multiple copies of a 70 amino acid motif called the BRC motif. These motifs effect binding to the Rad51 recombinase, which operates in DNA repair.

REFERENCES

1. Wooster, R., et al. 1994. Localization of a breast cancer susceptibility gene, BRCA2, to chromosome 13q12-13. *Science* 265: 2088-2090.
2. Collins, N., et al. 1995. Consistent loss of the wildtype allele in breast cancers from a family linked to the BRCA2 gene on chromosome 13q12-13. *Oncogene* 10: 1673-1675.
3. Kerangueven, F., et al. 1995. Patterns of loss of heterozygosity at loci from chromosome arm 13q suggests a possible involvement of BRCA2 in sporadic breast tumors. *Genes Chromosomes Cancer* 13: 291-294.
4. Couch, F.J., et al. 1996. BRCA2 germline mutations in male breast cancer cases and breast cancer families. *Nat. Genet.* 13: 123-125.
5. Frappart, P.O., et al. 2007. BRCA2 function and the central nervous system. *Cell Cycle* 6: 2453-2457.
6. Akbari, M.R., et al. 2008. Germline BRCA2 mutations and the risk of esophageal squamous cell carcinoma. *Oncogene* 27: 1290-1296.

CHROMOSOMAL LOCATION

Genetic locus: Brca2 (mouse) mapping to 5 G3.

PRODUCT

BRCA2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BRCA2 shRNA Plasmid (m): sc-29826-SH and BRCA2 shRNA (m) Lentiviral Particles: sc-29826-V as alternate gene silencing products.

For independent verification of BRCA2 (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-29826A, sc-29826B and sc-29826C.

PROTOCOLS

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

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

APPLICATIONS

BRCA2 siRNA (m) is recommended for the inhibition of BRCA2 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 μ M in 66 μ 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 BRCA2 gene expression knockdown using RT-PCR Primer: BRCA2 (m)-PR: sc-29826-PR (20 μ l, 518 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.