

# BRCA1 siRNA (m): sc-29824

## 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, located on chromosome 13q13.1, also confers a high incidence of breast cancer but, unlike BRCA1, does not confer a substantially elevated risk of ovarian cancer. The BRCA1 gene is expressed in numerous tissues, including breast and ovary, and encodes a predicted protein of 1,863 amino acids. This protein contains a zinc-finger domain in its amino-terminal region, but is otherwise unrelated to any previously described proteins. Like many other genes involved in familial cancer, BRCA1 appears to encode a tumor suppressor, a protein that acts as a negative regulator of tumor growth.

## REFERENCES

- Hall, J.M., et al. 1990. Linkage of early-onset familial breast cancer to chromosome 17q21. *Science* 250: 1684-1689.
- Narod, S.A., et al. 1991. Familial breast-ovarian cancer locus on chromosome 17q12-q23. *Lancet* 338: 82-83.
- Nowak, R. 1994. Breast cancer gene offers surprises. *Science* 265: 1796-1799.
- Wooster, R., et al. 1994. Localization of a breast cancer susceptibility gene, BRCA2, to chromosome 13q12-13. *Science* 265: 2088-2090.
- Miki, Y., et al. 1994. A strong candidate for the breast and ovarian cancer susceptibility gene BRCA1. *Science* 266: 66-71.
- Futreal, P.A., et al. 1994. BRCA1 mutations in primary breast and ovarian carcinomas. *Science* 266: 120-122.

## CHROMOSOMAL LOCATION

Genetic locus: Brca1 (mouse) mapping to 11 D.

## PRODUCT

BRCA1 siRNA (m) is a target-specific 19-25 nt siRNA 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 BRCA1 shRNA Plasmid (m): sc-29824-SH and BRCA1 shRNA (m) Lentiviral Particles: sc-29824-V as alternate gene silencing 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  $\mu$ 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

BRCA1 siRNA (m) is recommended for the inhibition of BRCA1 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.

## GENE EXPRESSION MONITORING

BRCA1 (287.17): sc-135732 is recommended as a control antibody for monitoring of BRCA1 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™ Molecular Weight Standards: sc-2035, UltraCruz® 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® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BRCA1 gene expression knockdown using RT-PCR Primer: BRCA1 (m)-PR: sc-29824-PR (20  $\mu$ l, 428 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Yao, Z., et al. 2013. 3,3'-diindolymethane ameliorates adriamycin-induced cardiac fibrosis via activation of a BRCA1-dependent anti-oxidant pathway. *Pharmacol. Res.* 70: 139-146.
- Panda, S., et al. 2018. Noncoding RNA Ginir functions as an oncogene by associating with centrosomal proteins. *PLoS Biol.* 16: e2004204.
- Morrone, M.D.S., et al. 2019. BRCA-1 depletion impairs pro-inflammatory polarization and activation of RAW 264.7 macrophages in a NF $\kappa$ B-dependent mechanism. *Mol. Cell. Biochem.* 462: 11-23.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.