SANTA CRUZ BIOTECHNOLOGY, INC.

BRCA1 siRNA (h): sc-29219

BACKGROUND

In 1990, a breast cancer susceptibility gene, designated BRCA1, was localized to chromosome 17q21.31. 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.

CHROMOSOMAL LOCATION

Genetic locus: BRCA1 (human) mapping to 17q21.31.

PRODUCT

BRCA1 siRNA (h) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BRCA1 shRNA Plasmid (h): sc-29219-SH and BRCA1 shRNA (h) Lentiviral Particles: sc-29219-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 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

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

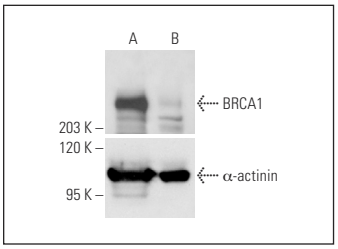
GENE EXPRESSION MONITORING

BRCA1 (D-9): sc-6954 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).

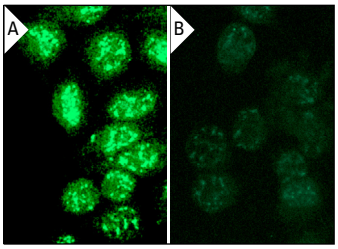
RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BRCA1 gene expression knockdown using RT-PCR Primer: BRCA1 (h)-PR: sc-29219-PR (20 µl, 564 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



BRCA1 siRNA (h): sc-29219. Western blot analysis of BRCA1 expression in non-transfected control (**A**) and BRCA1 siRNA transfected (**B**) A-431 cells. Blot probed with BRCA1 (C-20): sc-642. α-actinin (H-2): sc-17829 used as specificity and loading control.



BRCA1 siRNA (h): sc-29219. Immunofluorescence staining of methanol-fixed, control HeLa (**A**) and BRCA1 siRNA silenced HeLa (**B**) cells showing diminished nuclear staining in the siRNA silenced cells. Cells probed with BRCA1 (I-20): sc-646.

SELECT PRODUCT CITATIONS

1. Crowe, D.L. and Lee, M.K. 2005. New role for nuclear hormone receptors and coactivators in regulation of BRCA1-mediated DNA repair in breast cancer cell lines. Breast Cancer Res. 8: R1.
2. Satih, S., et al. 2010. Transcriptional profiling of breast cancer cells exposed to soy phytoestrogens after BRCA1 knockdown with a whole human genome microarray approach. Nutr. Cancer 62: 659-667.
3. Kim, H., et al. 2011. Cordycepin blocks lung injury-associated inflammation and promotes BRCA1-deficient breast cancer cell killing by effectively inhibiting PARP. Mol. Med. 17: 893-900.
4. He, X., et al. 2015. MiR-218 regulates cisplatin chemosensitivity in breast cancer by targeting BRCA1. Tumour Biol. 36: 2065-2075.
5. Xu, X., et al. 2016. Enforced expression of hsa-miR-125a-3p in breast cancer cells potentiates docetaxel sensitivity via modulation of BRCA1 signaling. Biochem. Biophys. Res. Commun. 479: 893-900.
6. Paculová, H., et al. 2017. BRCA1 or CDK12 loss sensitizes cells to Chk1 inhibitors. Tumour Biol. 39: 1010428317727479.
7. Baek, H.J., et al. 2018. Inhibition of Akt suppresses the initiation and progression of BRCA1-associated mammary tumors. Int. J. Biol. Sci. 14: 1769-1781.

RESEARCH USE

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