

# BRCA1 (D-9): sc-6954

## 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.

## SOURCE

BRCA1 (D-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1842-1862 at the C-terminus of BRCA1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

BRCA1 (D-9) is available conjugated to agarose (sc-6954 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-6954 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-6954 PE), fluorescein (sc-6954 FITC), Alexa Fluor<sup>®</sup> 488 (sc-6954 AF488), Alexa Fluor<sup>®</sup> 546 (sc-6954 AF546), Alexa Fluor<sup>®</sup> 594 (sc-6954 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-6954 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-6954 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-6954 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-6954 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

BRCA1 (D-9) is recommended for detection of BRCA1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for BRCA1 siRNA (h): sc-29219, BRCA1 shRNA Plasmid (h): sc-29219-SH and BRCA1 shRNA (h) Lentiviral Particles: sc-29219-V.

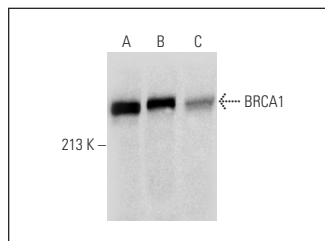
Molecular Weight of BRCA1: 220 kDa.

Positive Controls: A-431 nuclear extract: sc-2122, HeLa nuclear extract: sc-2120 or MCF7 nuclear extract: sc-2149.

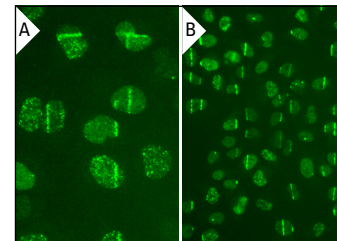
## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## DATA



BRCA1 (D-9): sc-6954. Western blot analysis of BRCA1 expression in A-431 (A), HeLa (B) and MCF7 (C) nuclear extracts.



BRCA1 (D-9): sc-6954. Immunofluorescence staining of formalin-fixed, UVA laser-microirradiated U-2 OS cells (A) and HeLa cells (B) showing nuclear staining of cells with DNA damage. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Childrens Hospital, Cell Biology Department, Harvard Medical School.

## SELECT PRODUCT CITATIONS

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3. Ktoci, D., et al. 2012. BRCA1 and GATA3 corepress FOXC1 to inhibit the pathogenesis of basal-like breast cancers. *Oncogene* 31: 3667-3678.
4. Feng, L., et al. 2013. RIF1 counteracts BRCA1-mediated end resection during DNA repair. *J. Biol. Chem.* 288: 11135-11143.
5. Hill, S.J., et al. 2014. BRCA1 pathway function in basal-like breast cancer cells. *Mol. Cell. Biol.* 34: 3828-3842.
6. Benada, J., et al. 2015. Polo-like kinase 1 inhibits DNA damage response during mitosis. *Cell Cycle* 14: 219-231.
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9. Liu, S., et al. 2018. Nuclear envelope assembly defects link mitotic errors to chromothripsis. *Nature* 561: 551-555.
10. West, K.L., et al. 2019. LC8/DYNLL1 is a 53BP1 effector and regulates checkpoint activation. *Nucleic Acids Res.* 47: 6236-6249.
11. Mooser, C., et al. 2020. Treacle controls the nucleolar response to rDNA breaks via TOPBP1 recruitment and ATR activation. *Nat. Commun.* 11: 123.

## RESEARCH USE

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

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