SANTA CRUZ BIOTECHNOLOGY, INC.

BRCA2 (3D12): sc-293185



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 (breast cancer 2, early onset), 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. Both BRCA1 and BRCA2 play a role in the maintainance 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.
- 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.

CHROMOSOMAL LOCATION

Genetic locus: BRCA2 (human) mapping to 13q13.1.

SOURCE

BRCA2 (3D12) is a mouse monoclonal antibody raised against a partial recombinant protein corresponding to amino acids 3319-3418 of BRCA2 of human origin.

PRODUCT

Each vial contains 100 μg lgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

BRCA2 (3D12) is recommended for detection of BRCA2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for BRCA2 siRNA (h): sc-29825, BRCA2 shRNA Plasmid (h): sc-29825-SH and BRCA2 shRNA (h) Lentiviral Particles: sc-29825-V.

Molecular Weight of BRCA2: 390 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



BRCA2 (3D12): sc-293185. Western blot analysis of human recombinant BRCA2 fusion protein.

SELECT PRODUCT CITATIONS

- Xia, Y., et al. 2018. Nuclear rupture at sites of high curvature compromises retention of DNA repair factors. J. Cell Biol. 217: 3796-3808.
- Teng, Y., et al. 2018. ROS-induced R loops trigger a transcription-coupled but BRCA1/2-independent homologous recombination pathway through CSB. Nat. Commun. 9: 4115.
- 3. Miao, Y., et al. 2019. BRCA2 deficiency is a potential driver for human primary ovarian insufficiency. Cell Death Dis. 10: 474.
- Hu, L., et al. 2020. A novel M phase blocker, DCZ3301 enhances the sensitivity of bortezomib in resistant multiple myeloma through DNA damage and mitotic catastrophe. J. Exp. Clin. Cancer Res. 39: 105.
- 5. Li, S., et al. 2021. PIF1 helicase promotes break-induced replication in mammalian cells. EMBO J. 40: e104509.
- Luo, H., et al. 2022. Androgen receptor splicing variant 7 (ARv7) promotes DNA damage response in prostate cancer cells. FASEB J. 36: e22495.
- 7. Lodovichi, S., et al. 2023. PARylation of BRCA1 limits DNA break resection through BRCA2 and EXO1. Cell Rep. 42: 112060.
- Raab, M., et al. 2024. Rescue of p53 functions by *in vitro*-transcribed mRNA impedes the growth of high-grade serous ovarian cancer. Cancer Commun. 44: 101-126.

STORAGE

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

RESEARCH USE

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