



BRIP1 (GO-IG5): sc-21755

BACKGROUND

Genes that contribute to tumorigenesis can be broadly classified as either gatekeepers or caretakers. Genes in the gatekeeper class directly regulate cell division or cell death, and their alteration results in the uncontrolled cellular proliferation that characterizes tumor cells. Genes in the caretaker class are involved in DNA metabolic processes and are responsible for maintaining the overall stability of the genome. An unusual mutator phenotype in *Caenorhabditis elegans*, characterized by deletions that start around the 3' end of poly-guanine tracts and terminate at variable positions 5' from such tracts, results from disruption of a gene that encodes BRIP1 (also designated BACH1 or BRCA1-associated carboxy-terminal helicase-1). BRCA1 interacts *in vivo* with BRIP1, a member of the DEAH helicase family. BRIP1 contains the seven helicase-specific motifs that are conserved among members of the DEAH family, and the helicase domain includes a nuclear localization signal. BRIP1 is ubiquitously expressed with highest levels in testis, an expression pattern similar to that of BRCA1. BRIP1 binds directly to the BRCT repeats of BRCA1 and the BRIP1-BRCA1 complex formation contributes to a key BRCA1 activity. BRIP1 is required to resolve the secondary structures of guanine-rich DNA that occasionally form during lagging-strand DNA synthesis. Phosphorylated BRIP1/BACH1 binds directly to the BRCT domain of BRCA1. This interaction is dependent on the phosphorylation of BRIP1/BACH1 at Ser 990, and is required for DNA damage-induced checkpoint control during the G₂ to M phase transition of the cell cycle.

REFERENCES

1. Cantor, S., et al. 2001. BACH1, a novel helicase-like protein, interacts directly with BRCA1 and contributes to its DNA repair function. *Cell* 105: 149-160.
2. Liu, Y. and West, S.C. 2002. Distinct functions of BRCA1 and BRCA2 in double-strand break repair. *Breast Cancer Res.* 4: 9-13.
3. Yu, X., et al. 2003. The BRCT domain is a phosphoprotein binding domain. *Science* 302: 639-642.
4. Rodriguez, M., et al. 2003. Phosphopeptide binding specificities of BRCA1 COOH-terminal (BRCT) domains. *J. Biol. Chem.* 278: 52914-52918.

CHROMOSOMAL LOCATION

Genetic locus: BRIP1 (human) mapping to 17q22-q24; Brip1 (mouse) mapping to 11 C.

SOURCE

BRIP1 (GO-IG5) is a mouse monoclonal antibody raised against GST-tagged recombinant protein corresponding to amino acids 647-1043 of BRIP1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-21755 X, 200 µg/0.1 ml.

APPLICATIONS

BRIP1 (GO-IG5) is recommended for detection of BRIP1 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for BRIP1 siRNA (h): sc-43640.

BRIP1 (GO-IG5) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of BRIP1: 140 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, HeLa nuclear extract: sc-2120 or 293T whole cell lysate.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.

PROTOCOLS

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