SANTA CRUZ BIOTECHNOLOGY, INC.

p-BRCA1 (G-4): sc-166793

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

BRCA1 is a cell cycle-regulated nuclear protein that is phosphorylated mainly on serine and to a lesser extent on threonine residues. Changes in phosphorylation occur in response to cell cycle progression and DNA damage. BRCA1 undergoes hyperphosphorylation during late G_1 and S phases of the cell cycle. BRCA1 is a substrate of ATM kinase, and phosphorylation of BRCA1 requires the presence of a functional ATM protein. Chk2 regulates BRCA1 function after DNA damage by phosphorylating Serine 988 of BRCA1. This phosphorylation is required for the release of BRCA1 from Chk2 and the ability of BRCA1 to restore survival after DNA damage. BRCA1 is also phosphorylated at Serine 1497, which is part of a cyclin-dependent kinase consensus site.

REFERENCES

1. Altiok, S., et al. 1999. Heregulin induces phosphorylation of BRCA1 through phosphatidylinositol 3-kinase/AKT in breast cancer cells. J. Biol. Chem. 274: 32274-32278.
2. Cortez, D., et al. 1999. Requirement of ATM-dependent phosphorylation of BRCA1 in the DNA damage response to double-strand breaks. Science 286: 1162-1166.
3. Ruffner, H., et al. 1999. BRCA1 is phosphorylated at Serine 1497 *in vivo* at a cyclin-dependent kinase 2 phosphorylation site. Mol. Cell. Biol. 19: 4843-4854.

CHROMOSOMAL LOCATION

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

SOURCE

p-BRCA1 (G-4) is a mouse monoclonal antibody specific for an epitope containing Ser 988 phosphorylated BRCA1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. and 0.1% gelatin.

p-BRCA1 (G-4) is available conjugated to agarose (sc-166793 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166793 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166793 PE), fluorescein (sc-166793 FITC), Alexa Fluor® 488 (sc-166793 AF488), Alexa Fluor® 546 (sc-166793 AF546), Alexa Fluor® 594 (sc-166793 AF594) or Alexa Fluor® 647 (sc-166793 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166793 AF680) or Alexa Fluor® 790 (sc-166793 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166793 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

APPLICATIONS

p-BRCA1 (G-4) is recommended for detection of Ser 988 phosphorylated BRCA1 of human origin by Western Blotting (starting dilution 1:100, 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.

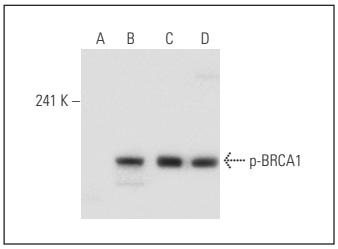
Molecular Weight of p-BRCA1: 220 kDa.

Positive Controls: HeLa + UV irradiated cell lysate: sc-2221, K-562 + UV cell lysate: sc-24724 or HeLa whole cell lysate: sc-2200.

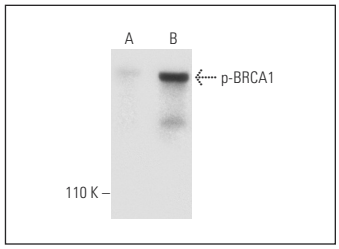
RECOMMENDED SUPPORT REAGENTS

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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Western blot analysis of BRCA1 phosphorylation in untreated (**A**,**C**) and UV irradiated (**B**,**D**) HeLa whole cell lysates. Antibodies tested include p-BRCA1 (G-4): sc-166793 (**A**,**B**) and BRCA1 (H-300): sc-28234 (**C**,**D**).



p-BRCA1 (G-4): sc-166793. Western blot analysis of BRCA1 phosphorylation in untreated (**A**) and UV irradiated (**B**) Cos whole cell lysates.

SELECT PRODUCT CITATIONS

1. Gutiérrez-González, A., et al. 2013. Targeting Chk2 improves gastric cancer chemotherapy by impairing DNA damage repair. Apoptosis 18: 347-360.

RESEARCH USE

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

PROTOCOLS

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