SANTA CRUZ BIOTECHNOLOGY, INC.

# p-BRCA1 (Ser 1497): sc-12889

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.
4. Gatei, M., et al. 2000. Role for ATM in DNA damage-induced phosphorylation of BRCA1. Cancer Res. 60: 3299-3304.
5. Lee, J.S., et al. 2000. hCds1-mediated phosphorylation of BRCA1 regulates the DNA damage response. Nature 404: 201-204.
6. Cabart, P., et al. 2004. BRCA1 cooperates with NUFIP and P-TEFβ to activate transcription by RNA polymerase II. Oncogene 23: 5316-5329.
7. Xu, X., et al. 2004. Microcephalin is a DNA damage response protein involved in regulation of CHK1 and BRCA1. J. Biol. Chem. 279: 34091-34094.


## CHROMOSOMAL LOCATION

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

## SOURCE

p-BRCA1 (Ser 1497) is available as either goat (sc-12889) or rabbit (sc-12889-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing phosphorylated Ser 1497 of BRCA1 of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-12889 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

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

## APPLICATIONS

p-BRCA1 (Ser 1497) is recommended for detection of Ser 1497 phosphorylated 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.

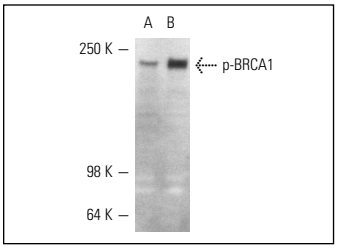
Molecular Weight of p-BRCA1: 220 kDa.

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

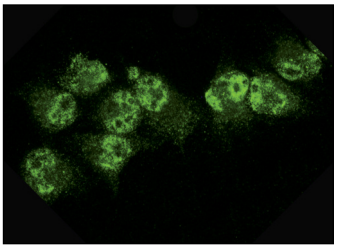
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent) 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA




p-BRCA1 (Ser 1497): sc-12889. Western blot analysis of p-BRCA1 expression in HeLa (**A**) and UV-irradiated HeLa (**B**) whole cell lysates.



p-BRCA1 (Ser 1497): sc-12889. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

## SELECT PRODUCT CITATIONS


1. Coene, E.D., et al. 2005. Phosphorylated BRCA1 is predominantly located in the nucleus and mitochondria. Mol. Biol. Cell 16: 9997-1010.


## STORAGE

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