

Rad50 (C-20): sc-18291

BACKGROUND

Rad52 family members (Rad50, Rad51B/C/D, Rad52, Rad54, MRE11) mediate DNA double-strand break repair (DSBR) for DNA damage that otherwise could cause cell death, mutation or neoplastic transformation. Rad51 (RECA, BRCC5) interacts with BRCA1 and BRCA2 to influence subcellular localization and cellular response to DNA damage. BRCA2 inactivation may be a key event leading to genomic instability and tumorigenesis from deregulation of Rad51. Rad52 forms a heptameric ring that binds single-stranded DNA ends and catalyzes DNA-DNA interaction necessary for the annealing of complementary strands. Rad54A of the DEAD-like helicase superfamily binds to double-stranded DNA and induces a DNA topological change, which is thought to facilitate homologous DNA pairing and stimulate DNA recombination. Rad54B of the DEAD-like helicase superfamily binds to double-stranded DNA and displays ATPase activity in the presence of DNA. Rad54B is abundant in testis and spleen, and mutations of this gene occur in primary lymphoma and colon cancer.

REFERENCES

1. Tsukamoto, Y., et al. 1996. Effects of mutations of Rad50, Rad51, Rad52, and related genes on illegitimate recombination in *Saccharomyces cerevisiae*. *Genetics* 142: 383-391.
2. Zhong, Q., et al. 2002. Deficient nonhomologous end-joining activity in cell-free extracts from BRCA1-null fibroblasts. *Cancer Res* 62: 3966-3970.
3. Lisby, M., et al. 2003. Co-localization of multiple DNA double-strand breaks at a single Rad52 repair centre. *Nat. Cell. Biol.* 5: 572-577.
4. Sugawara, N., et al. 2003. *In vivo* roles of Rad52, Rad54, and Rad55 proteins in Rad51-mediated recombination. *Mol. Cell* 12: 209-219.
5. O'Connor, M.S., et al. 2004. The human Rap1 protein complex and modulation of telomere length. *J. Biol. Chem.* 279: 28585-28591.
6. Miyazaki, T., et al. 2004. *In vivo* assembly and disassembly of Rad51 and Rad52 complexes during double-strand break repair. *EMBO J.* 23: 939-949.
7. Bekker-Jensen, S., et al. 2006. Spatial organization of the mammalian genome surveillance machinery in response to DNA strand breaks. *J. Cell. Biol.* 173: 195-206.

CHROMOSOMAL LOCATION

Genetic locus: RAD50 (human) mapping to 5q31.1; Rad50 (mouse) mapping to 11 B1.3.

SOURCE

Rad50 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Rad50 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-18291 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Rad50 (C-20) is recommended for detection of Rad50 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Rad50 (C-20) is also recommended for detection of Rad50 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Rad50 siRNA (h): sc-37397, Rad50 siRNA (m): sc-37398, Rad50 shRNA Plasmid (h): sc-37397-SH, Rad50 shRNA Plasmid (m): sc-37398-SH, Rad50 shRNA (h) Lentiviral Particles: sc-37397-V and Rad50 shRNA (m) Lentiviral Particles: sc-37398-V.

Molecular Weight of Rad50: 150 kDa.

Positive Controls: L8 cell lysate: sc-3807, HeLa nuclear extract: sc-2120 or K-562 nuclear extract: sc-2130.

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 A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) 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.

SELECT PRODUCT CITATIONS

1. Singh, S., et al. 2009. Modification in the expression of Mre11/Rad50/Nbs1 complex in low dose irradiated human lymphocytes. *Dose Response* 7: 193-207.

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.



Try **Rad50 (G-2): sc-74460** or **Rad50 (13B3/2C6): sc-56209**, our highly recommended monoclonal alternatives to Rad50 (C-20).