

Rad51D (C-16): sc-33090

BACKGROUND

DNA double-strand breaks are generated by ionizing radiation and endogenously produced radicals, and they often are repaired through the Rad52 homologous recombination pathway. The RAD52 family includes RAD51, RAD52, RAD54, RAD54B and MRE11 genes. Rad51 and Rad52 proteins perform the key steps in homologous recombination (HR), including the search for DNA homology and strand exchange, through similar mechanisms. Mre11 functions in both non-homologous end joining and meiotic HR, and it is essential in mitosis for chromosome maintenance. Rad54 belongs to the SWI2/SNF2 subfamily of ATPases, which includes the DNA helicases involved in replication, recombination and repair, as it contains seven amino acid sequence motifs that are largely conserved. Rad54 ATPase activity is dependent on double-stranded (ds) DNA, and the ATPase activity of Rad54 is not absolutely required for its DNA repair function, suggesting that these activities occur at distinct regions of the molecule. RAD54B is significantly homologous to the RAD54 recombination gene. Expression of Rad54B is highest in testis and spleen, which are active in both meiotic and mitotic recombination.

REFERENCES

1. Park, M.S. 1995. Expression of human Rad52 confers resistance to ionizing radiation in mammalian cells. *J. Biol. Chem.* 270: 15467-15470.
2. Shen, Z., et al. 1996. Specific interactions between the human Rad51 and Rad52 proteins. *J. Biol. Chem.* 271: 148-152.
3. Benson, F.E., et al. 1998. Synergistic actions of Rad51 and Rad52 in recombination and DNA repair. *Nature* 391: 401-404.
4. Hiramoto, T., et al. 1999. Mutations of a novel human Rad54 homologue, RAD54B, in primary cancer. *Oncogene* 18: 3427-3430.
5. Shin, D.S., et al. 2003. Full-length archaeal Rad51 structure and mutants: mechanisms for Rad51 assembly and control by BRCA2. *EMBO J.* 22: 4566-4576.
6. Bindra, R.S., et al. 2004. Down-regulation of Rad51 and decreased homologous recombination in hypoxic cancer cells. *Mol. Cell. Biol.* 24: 8504-8518.
7. Richardson, C., et al. 2004. Rad51 overexpression promotes alternative double-strand break repair pathways and genome instability. *Oncogene* 23: 546-553.

CHROMOSOMAL LOCATION

Genetic locus: RAD51L3 (human) mapping to 17q11; Rad51I3 (mouse) mapping to 11 C.

SOURCE

Rad51D (C-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of RAD51D of human origin.

STORAGE

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

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-33090 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Rad51D (C-16) is recommended for detection of RAD51D 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).

Suitable for use as control antibody for Rad51D siRNA (h): sc-44933, Rad51D siRNA (m): sc-44934, Rad51D shRNA Plasmid (h): sc-44933-SH, Rad51D shRNA Plasmid (m): sc-44934-SH, Rad51D shRNA (h) Lentiviral Particles: sc-44933-V and Rad51D shRNA (m) Lentiviral Particles: sc-44934-V.

Molecular Weight of Rad51D: 33 kDa.

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.

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.


 MONOS
 Satisfaction
 Guaranteed

Try **Rad51D (C-1): sc-398819** or **Rad51D (5B3/6): sc-53432**, our highly recommended monoclonal alternatives to Rad51D (C-16).