

# Rad51 (H-92): sc-8349

## 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. Rad52 can interact with Rad51. Rad54A of the DEAD-like helicase superfamily binds to double-strand 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. MRE11 (meiotic recombination 11, ATLD, HNGS1) is a nuclear 3'-5' exonuclease/endonuclease that associates with Rad50 and influences homologous recombination, telomere length maintenance and DNA double-strand break repair. MRE11 is most abundant in proliferating tissues.

## CHROMOSOMAL LOCATION

Genetic locus: RAD51 (human) mapping to 15q15.1; Rad51 (mouse) mapping to 2 E5.

## SOURCE

Rad51 (H-92) is a rabbit polyclonal antibody raised against amino acids 1-92 of Rad51 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.

## APPLICATIONS

Rad51 (H-92) is recommended for detection of Rad51 of mouse, rat and 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Rad51 (H-92) is also recommended for detection of Rad51 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Rad51 siRNA (h): sc-36361, Rad51 siRNA (m): sc-36360, Rad51 shRNA Plasmid (h): sc-36361-SH, Rad51 shRNA Plasmid (m): sc-36360-SH, Rad51 shRNA (h) Lentiviral Particles: sc-36361-V and Rad51 shRNA (m) Lentiviral Particles: sc-36360-V.

Molecular Weight for Rad51: 37 kDa.

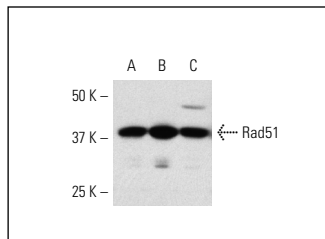
## RESEARCH USE

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

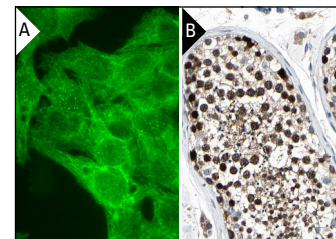
## STORAGE

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

## DATA



Rad51 (H-92): sc-8349. Western blot analysis of Rad51 expression in HeLa (A), K-562 (B), and A-431 (C) nuclear extracts.



Rad51 (H-92): sc-8349. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear and cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear staining of cells in ductus deferens. Kindly provided by The Swedish Human Protein Atlas (HPA) program (B).

## SELECT PRODUCT CITATIONS

- Caspari, T., et al. 2002. Cdc2-cyclin B kinase activity links CRB2 and Rqh1-topoisomerase III. *Genes Dev.* 16: 1195-1208.
- Kanamoto, T., et al. 2002. Functional proteomics of transforming growth factor-β1-stimulated Mv1Lu epithelial cells: Rad51 as a target of TGFβ1-dependent regulation of DNA repair. *EMBO J.* 21: 1219-1230.
- Zink, D., et al. 2002. Association of p53 and MSH2 with recombinative repair complexes during S phase. *Oncogene* 21: 4788-4800.
- Celeste, A. 2002. Genomic instability in mice lacking histone H2AX. *Science* 296: 922-927.
- Serrano, M.A., et al. 2012. DNA-PK, ATM and ATR collaboratively regulate p53-RPA interaction to facilitate homologous recombination DNA repair. *Oncogene* 32: 2452-2462.
- Tavecchio, M., et al. 2012. Further characterisation of the cellular activity of the DNA-PK inhibitor, NU7441, reveals potential cross-talk with homologous recombination. *Cancer Chemother. Pharmacol.* 69: 155-164.
- Sousa, M.M., et al. 2013. An inverse switch in DNA base excision and strand break repair contributes to melphalan resistance in multiple myeloma cells. *PLoS ONE* 8: e55493.
- Jamsai, D., et al. 2013. Loss of GGN leads to pre-implantation embryonic lethality and compromised male meiotic DNA double strand break repair in the mouse. *PLoS ONE* 8: e56955.



Try **Rad51 (F-11): sc-398587** or **Rad51 (G-9): sc-377467**, our highly recommended monoclonal alternatives to Rad51 (H-92). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **Rad51 (F-11): sc-398587**.