

# Rad51 (51RAD01): sc-56212

## 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 (51RAD01) is a mouse monoclonal antibody raised against recombinant Rad51 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

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

## APPLICATIONS

Rad51 (51RAD01) 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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.

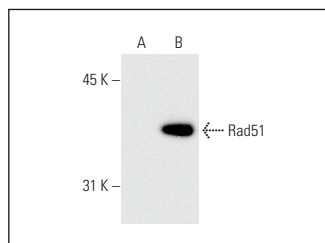
Molecular Weight of Rad51: 37 kDa.

Positive Controls: K-562 nuclear extract: sc-2130, A-431 whole cell lysate: sc-2201 or Rad51 (m): 293T Lysate: sc-127439.

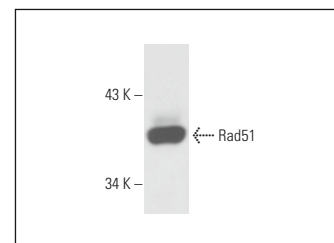
## RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



Rad51 (51RAD01): sc-56212. Western blot analysis of Rad51 expression in non-transfected: sc-117752 (A) and mouse Rad51 transfected: sc-127439 (B) 293T whole cell lysates.



Rad51 (51RAD01): sc-56212. Western blot analysis of Rad51 expression in K-562 nuclear extract.

## SELECT PRODUCT CITATIONS

- Xing, Y., et al. 2011. DNA damage in embryonic stem cells caused by nano-diamonds. ACS Nano 5: 2376-2384.
- Sidler, C., et al. 2013. Immunosenescence is associated with altered gene expression and epigenetic regulation in primary and secondary immune organs. Front. Genet. 4: 211.
- Mishra, A., et al. 2018. Rad51C/XRCC3 facilitates mitochondrial DNA replication and maintains integrity of the mitochondrial genome. Mol. Cell. Biol. 38: e00489-17.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.



See **Rad51 (F-11): sc-398587** for Rad51 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.