

# Rad51B (Rad51B 1H3/13): sc-53430

## 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.

## 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. Colocalization of multiple DNA double-strand breaks at a single Rad52 repair centre. *Nat. Cell Biol.* 5: 572-577.

## CHROMOSOMAL LOCATION

Genetic locus: RAD51B (human) mapping to 14q24.1.

## SOURCE

Rad51B (1H3/13) is a mouse monoclonal antibody raised against His-tagged recombinant Rad51B of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Rad51B (1H3/13) is available conjugated to agarose (sc-53430 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53430 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53430 PE), fluorescein (sc-53430 FITC), Alexa Fluor® 488 (sc-53430 AF488), Alexa Fluor® 546 (sc-53430 AF546), Alexa Fluor® 594 (sc-53430 AF594) or Alexa Fluor® 647 (sc-53430 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53430 AF680) or Alexa Fluor® 790 (sc-53430 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

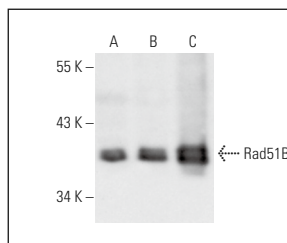
Rad51B (1H3/13) is recommended for detection of Rad51B of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Rad51B siRNA (h): sc-45855, Rad51B shRNA Plasmid (h): sc-45855-SH and Rad51B shRNA (h) Lentiviral Particles: sc-45855-V.

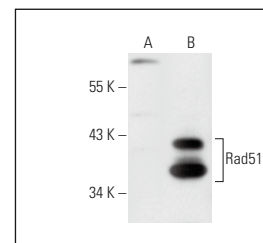
Molecular Weight of Rad51B: 42 kDa.

Positive Controls: Rad51B (h): 293T Lysate: sc-114167, HeLa nuclear extract: sc-2120 or IMR-32 nuclear extract: sc-2148.

## DATA



Rad51B (1H3/13): sc-53430. Western blot analysis of Rad51B expression in MOLT-4 (A), HeLa (B) and IMR-32 (C) nuclear extracts.



Rad51B (1H3/13): sc-53430. Western blot analysis of Rad51B expression in non-transfected: sc-117752 (A) and human Rad51B transfected: sc-114167 (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Chun, J., et al. 2013. Rad51 paralog complexes BCDX2 and CX3 act at different stages in the BRCA1-BRCA2-dependent homologous recombination pathway. *Mol. Cell. Biol.* 33: 387-395.
2. Setton, J., et al. 2021. Germline Rad51B variants confer susceptibility to breast and ovarian cancers deficient in homologous recombination. *NPJ Breast Cancer* 7: 135.

## 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](http://www.scbt.com) for detailed protocols and support products.