SANTA CRUZ BIOTECHNOLOGY, INC.

Rad51B (F-12): sc-377192

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

SOURCE

Rad51B (F-12) is a mouse monoclonal antibody raised against amino acids 141-255 mapping within an internal region of Rad51B of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-377192 X, 200 µg/0.1 ml.

APPLICATIONS

Rad51B (F-12) is recommended for detection of Rad51B of human origin by Western Blotting (starting dilution 1:100, 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

Rad51B (F-12) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

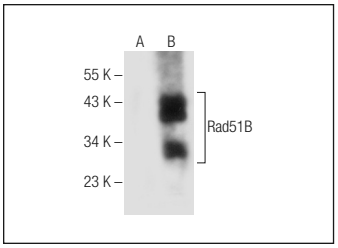
Molecular Weight of Rad51B: 42 kDa.

Positive Controls: Rad51B (h): 293T Lysate: sc-114167, MOLT-4 nuclear extract: sc-2151 or HeLa nuclear extract: sc-2120.

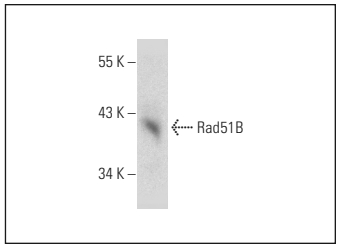
RECOMMENDED SUPPORT REAGENTS

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.

DATA



Rad51B (F-12): sc-377192. Western blot analysis of Rad51B expression in non-transfected: sc-117752 (**A**) and human Rad51B transfected: sc-114167 (**B**) 293T whole cell lysates.



Rad51B (F-12): sc-377192. Western blot analysis of Rad51B expression in MOLT-4 nuclear extract.

SELECT PRODUCT CITATIONS

1. Saxena, S., et al. 2018. XRCC2 regulates replication fork progression during dNTP alterations. Cell Rep. 25: 3273-3282.e6.
2. Mishra, A., et al. 2018. Rad51C/XRCC3 facilitates mitochondrial DNA replication and maintains integrity of the mitochondrial genome. Mol. Cell. Biol. 38: e00489-17.
3. Berti, M., et al. 2020. Sequential role of Rad51 paralog complexes in replication fork remodeling and restart. Nat. Commun. 11: 3531.
4. Halder, S., et al. 2022. Strand annealing and motor driven activities of SMARCAL1 and ZRANB3 are stimulated by Rad51 and the paralog complex. Nucleic Acids Res. 50: 8008-8022.
5. Ali, M., et al. 2022. Small-molecule targeted therapies induce dependence on DNA double-strand break repair in residual tumor cells. Sci. Transl. Med. 14: eabc7480.

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 for detailed protocols and support products.