SANTA CRUZ BIOTECHNOLOGY, INC.

Rad51C (F-11): sc-390697

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.

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.
4. Sugawara, N., et al. 2003. *In vivo* roles of Rad52, Rad54, and Rad55 proteins in Rad51-mediated recombination. Mol. Cell 12: 209-219.
5. O'Connor, M.S., et al. 2004. The human Rap1 protein complex and modulation of telomere length. J. Biol. Chem. 279: 28585-28591.

CHROMOSOMAL LOCATION

Genetic locus: RAD51C (human) mapping to 17q22; Rad51c (mouse) mapping to 11 C.

SOURCE

Rad51C (F-11) is a mouse monoclonal antibody raised against amino acids 1-157 mapping at the N-terminus of Rad51C 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.

STORAGE

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

APPLICATIONS

Rad51C (F-11) is recommended for detection of Rad51C of mouse, rat and 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 Rad51C siRNA (h): sc-45956, Rad51C siRNA (m): sc-45957, Rad51C shRNA Plasmid (h): sc-45956-SH, Rad51C shRNA Plasmid (m): sc-45957-SH, Rad51C shRNA (h) Lentiviral Particles: sc-45956-V and Rad51C shRNA (m) Lentiviral Particles: sc-45957-V.

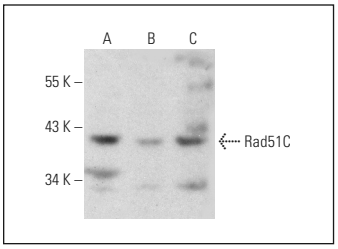
Molecular Weight of Rad51C: 42 kDa.

Positive Controls: A549 cell lysate: sc-2413, HEK293 whole cell lysate: sc-45136 or ES-2 cell lysate: sc-24674.

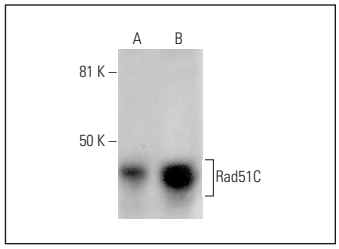
RECOMMENDED SUPPORT REAGENTS

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



Rad51C (F-11): sc-390697. Western blot analysis of Rad51C expression in A549 (**A**), L8 (**B**) and KNRK (**C**) whole cell lysates.



Rad51C (F-11): sc-390697. Western blot analysis of Rad51C expression in HEK293 (**A**) and ES-2 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Li, H., et al. 2020. Comprehensive role of prostate-specific antigen identified with proteomic analysis in prostate cancer. J. Cell. Mol. Med. 24: 10202-10215.
2. Shah, R.B., et al. 2021. FANCI functions as a repair/apoptosis switch in response to DNA crosslinks. Dev. Cell 56: 2207-2222.e7.

RESEARCH USE

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