SANTA CRUZ BIOTECHNOLOGY, INC.

Rad51 (C-20): sc-6862

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

SOURCE

Rad51 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus 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.

Blocking peptide available for competition studies, sc-6862 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Rad51 (C-20) 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with Dmc1.

Rad51 (C-20) 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.

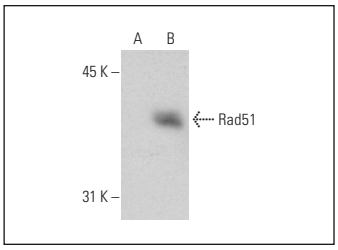
Molecular Weight of Rad51: 37 kDa.

Positive Controls: Rad51 (m): 293T Lysate: sc-127439.

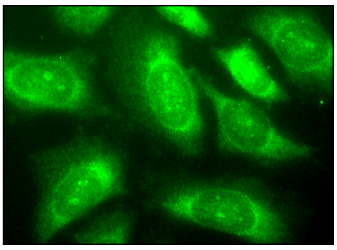
STORAGE

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

DATA



Rad51 (C-20): sc-6862. Western blot analysis of Rad51 expression in non-transfected: sc-117752 (**A**) and mouse Rad51 transfected: sc-127439 (**B**) 293T whole cell lysates.



Rad51 (C-20): sc-6862. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Calaf, G.M., et al. 2000. Establishment of a radiation- and estrogen-induced breast cancer model. Carcinogenesis 21: 769-776.
2. Richardson, C., et al. 2004. Rad51 overexpression promotes alternative double-strand break repair pathways and genome instability. Oncogene 23: 546-553.
3. Brown, C.K., et al. 2004. Glioblastoma cells block radiation-induced programmed cell death of endothelial cells. FEBS Lett. 565: 167-170.
4. Hu, Y., et al. 2007. RECQL5/Recql5 helicase regulates homologous recombination and suppresses tumor formation via disruption of Rad51 presynaptic filaments. Genes Dev. 21: 3073-3084.
5. Davies, O.R., et al. 2007. Interaction with the BRCA2 C terminus protects RAD51-DNA filaments from disassembly by BRC repeats. Nat. Struct. Mol. Biol. 14: 475-483.
6. Gupta, A., et al. 2009. Cell cycle checkpoint defects contribute to genomic instability in PTEN deficient cells independent of DNA DSB repair. Cell Cycle 8: 2198-2210.
7. Kujjo, L.L., et al. 2010. Enhancing survival of mouse oocytes following chemotherapy or aging by targeting Bax and Rad51. PLoS ONE 5: e9204.
8. Wu, N., et al. 2012. Scc1 sumoylation by Mms21 promotes sister chromatid recombination through counteracting Wapl. Genes Dev. 26: 1473-1485.

RESEARCH USE

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