SANTA CRUZ BIOTECHNOLOGY, INC.

Rad51 (3C10): sc-53428

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 (3C10) is a mouse monoclonal antibody raised against full length Rad51 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Rad51 (3C10) is available conjugated to agarose (sc-53428 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-53428 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53428 PE), fluorescein (sc-53428 FITC), Alexa Fluor® 488 (sc-53428 AF488), Alexa Fluor® 546 (sc-53428 AF546), Alexa Fluor® 594 (sc-53428 AF594) or Alexa Fluor® 647 (sc-53428 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53428 AF680) or Alexa Fluor® 790 (sc-53428 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

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 for detailed protocols and support products.

APPLICATIONS

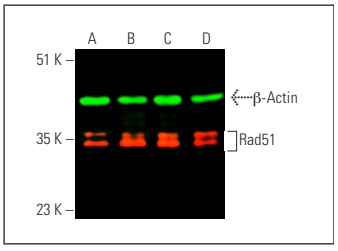
Rad51 (3C10) is recommended for detection of Rad51 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 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.

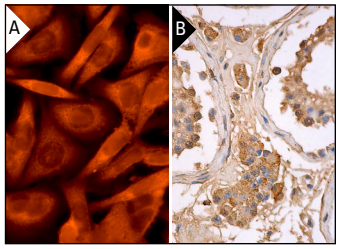
Molecular Weight of Rad51: 37 kDa.

Positive Controls: K-562 nuclear extract: sc-2130, A-431 nuclear extract: sc-2122 or HeLa nuclear extract: sc-2120.

DATA



Simultaneous near-infrared western blot analysis of Rad51 expression, detected with Rad51 (3C10): sc-53428 and m-IgGλ BP-CFL 790: sc-516195 and β-Actin expression, detected with β-Actin (C4): sc-47778 and m-IgGκ BP-CFL 680: sc-516180 in HeLa (**A**), K-562 (**B**), A-431 (**C**) and MOLT-4 (**D**) nuclear extracts.



Rad51 (3C10) Alexa Fluor® 546: sc-53428 AF546. Direct immunofluorescence staining of formalin-fixed SW480 cells showing cytoplasmic and nuclear localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). Rad51 (3C10): sc-53428. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic staining of cells in seminiferous ducts and cytoplasmic staining of Leydig cells (**B**).

SELECT PRODUCT CITATIONS

1. 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.
2. Vohhodina, J., et al. 2017. The RNA processing factors THRAP3 and BCLAF1 promote the DNA damage response through selective mRNA splicing and nuclear export. Nucleic Acids Res. 45: 12816-12833.
3. Ruíz, G., et al. 2018. Inhibition of Rad51 by siRNA and resveratrol sensitizes cancer stem cells derived from HeLa cell cultures to apoptosis. Stem Cells Int. 2018: 2493869.
4. Gao, H., et al. 2019. Overexpression of microRNA-10a in germ cells causes male infertility by targeting Rad51 in mouse and human. Front. Physiol. 10: 765.

RESEARCH USE

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