SANTA CRUZ BIOTECHNOLOGY, INC.

Rad51 (G-5): sc-133089

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

During meiotic prophase, homologous chromosomes pair with one another, undergo genetic recombination and engage in synaptonemal complex formation. These interhomolog interactions are necessary to establish chiasmata. If homologs fail to interact, or if crossing over takes place between nonhomologous chromosomes, homologs undergo nondisjunction at meiosis I and inviable meiotic products occur. Interactions between Rad51 and Rad52 are essential for DNA homologous recombination as well as for DNA double-strand break repair in *S. cerevisiae*. Rad54, which is inducible by X-rays, is also involved in DNA repair and recombination in *S. cerevisiae*. Hop2 is expressed during meiosis and may function to prevent synapsis between nonhomologous chromosomes. Hop2 is localized to chromosomes prior to and during synapsis.

CHROMOSOMAL LOCATION

Genetic locus: RAD51 (human) mapping to 15q15.1.

SOURCE

Rad51 (G-5) is a mouse monoclonal antibody raised against amino acids 1-180 mapping at the N-terminus of Rad51 of *Saccharomyces cerevisiae* origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Rad51 (G-5) is available conjugated to agarose (sc-133089 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-133089 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-133089 PE), fluorescein (sc-133089 FITC), Alexa Fluor® 488 (sc-133089 AF488), Alexa Fluor® 546 (sc-133089 AF546), Alexa Fluor® 594 (sc-133089 AF594) or Alexa Fluor® 647 (sc-133089 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-133089 AF680) or Alexa Fluor® 790 (sc-133089 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

Rad51 (G-5) is recommended for detection of Rad51 of human and yeast 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 Rad51 siRNA (h): sc-36361, Rad51 shRNA Plasmid (h): sc-36361-SH and Rad51 shRNA (h) Lentiviral Particles: sc-36361-V.

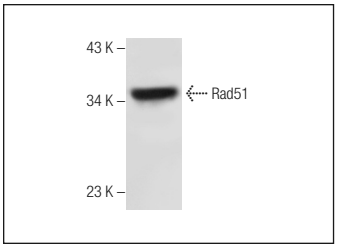
Molecular Weight of Rad51: 37 kDa.

Positive Controls: A-431 nuclear extract: sc-2122, K-562 whole cell lysate: sc-2203 or HeLa nuclear extract: sc-2120.

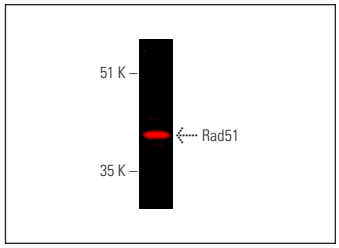
RECOMMENDED SUPPORT REAGENTS

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



Rad51 (G-5): sc-133089. Western blot analysis of Rad51 expression in A-431 nuclear extract.



Rad51 (G-5): sc-133089. Near-infrared western blot analysis of Rad51 expression in A-431 nuclear extract. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.

SELECT PRODUCT CITATIONS

1. Lee, M., et al. 2014. Rad52/Rad59-dependent recombination as a means to rectify faulty Okazaki fragment processing. J. Biol. Chem. 289: 15064-15079.
2. Fu, S., et al. 2018. Effect of sinomenine hydrochloride on radiosensitivity of esophageal squamous cell carcinoma cells. Oncol. Rep. 39: 1601-1608.
3. Xu, R., et al. 2019. hCINAP regulates the DNA-damage response and mediates the resistance of acute myelocytic leukemia cells to therapy. Nat. Commun. 10: 3812.
4. Jenkins, S.S., et al. 2019. Role of the Srs2-Rad51 interaction domain in crossover control in *Saccharomyces cerevisiae*. Genetics 212: 1133-1145.
5. Li, H., et al. 2021. PARP1 inhibitor combined with oxaliplatin efficiently suppresses oxaliplatin resistance in gastric cancer-derived organoids via homologous recombination and the base excision repair pathway. Front. Cell Dev. Biol. 9: 719192.

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.