

Rad52 (H-300): sc-8350

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.

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.

CHROMOSOMAL LOCATION

Genetic locus: RAD52 (human) mapping to 12p13.33; Rad52 (mouse) mapping to 6 F1.

SOURCE

Rad52 (H-300) is a rabbit polyclonal antibody raised against amino acids 119-418 mapping at the C-terminus of Rad52 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.

APPLICATIONS

Rad52 (H-300) is recommended for detection of Rad52 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). Suitable for use as control antibody for Rad52 siRNA (h): sc-37399, Rad52 siRNA (m): sc-37400, Rad52 shRNA Plasmid (h): sc-37399-SH, Rad52 shRNA Plasmid (m): sc-37400-SH, Rad52 shRNA (h) Lentiviral Particles: sc-37399-V and Rad52 shRNA (m) Lentiviral Particles: sc-37400-V.

Molecular Weight of Rad52: 48 kDa.

RESEARCH USE

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

SELECT PRODUCT CITATIONS

1. Trojaneck, J., et al. 2003. Role of the Insulin-like growth factor I/insulin receptor substrate 1 axis in Rad51 trafficking and DNA repair by homologous recombination. *Mol. Cell. Biol.* 23: 7510-7524.
2. Lau, A., et al. 2004. Suppression of retroviral infection by the Rad52 DNA repair protein. *EMBO J.* 23: 3421-3429.
3. Wilkinson, D.E., et al. 2004. Recruitment of cellular recombination and repair proteins to sites of herpes simplex virus type 1 DNA replication is dependent on the composition of viral proteins within prereplicative sites and correlates with the induction of the DNA damage response. *J. Virol.* 78: 4783-4796.
4. Wang, J.Y., et al. 2005. Impaired homologous recombination DNA repair and enhanced sensitivity to DNA damage in prostate cancer cells exposed to anchorage-independence. *Oncogene* 24: 3748-3758.
5. Wu, X., et al. 2005. Preferential localization of hyperphosphorylated replication protein A to double-strand break repair and checkpoint complexes upon DNA damage. *Biochem. J.* 391: 473-480.
6. Jacque, J.M., et al. 2006. The inner-nuclear-envelope protein emerlin regulates HIV-1 infectivity. *Nature* 441: 641-645.
7. Verdun, R.E., et al. 2006. The DNA damage machinery and homologous recombination pathway act consecutively to protect human telomeres. *Cell* 127: 709-720.
8. Trojaneck, J., et al. 2006. IRS-1-Rad51 nuclear interaction sensitizes JCV T-antigen positive medulloblastoma cells to genotoxic treatment. *Int. J. Cancer* 119: 539-548.
9. Trojaneck, J., et al. 2006. T-antigen of the human polyomavirus JC attenuates faithful DNA repair by forcing nuclear interaction between IRS-1 and Rad51. *J. Cell. Physiol.* 206: 35-46.
10. Lee, S.A., et al. 2009. Recovery of deficient homologous recombination in Brca2-depleted mouse cells by wild-type Rad51 expression. *DNA Repair* 8: 170-181.
11. Sousa, M.M., et al. 2013. An inverse switch in DNA base excision and strand break repair contributes to melphalan resistance in multiple myeloma cells. *PLoS ONE* 8: e55493.
12. Chun, J., et al. 2013. Rad51 paralog complexes BCDX2 and CX3 act at different stages in the BRCA1-BRCA2-dependent homologous recombination pathway. *Mol. Cell. Biol.* 33: 387-395.

STORAGE

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



Try **Rad52 (F-7): sc-365341**, our highly recommended monoclonal alternative to Rad52 (H-300).