

# Dmc1 (N-19): sc-8972

## BACKGROUND

DNA repair proteins are necessary for the maintenance of chromosome integrity and are involved in the elimination of premutagenic lesions from DNA. The DNA repair proteins Rad51 and Rad52 are key components of the double-strand-break repair (DSBR) pathway. Rad51 is essential for mitotic and meiotic recombination, and its mutation in yeast and mammalian cells results in chromosome loss. Overexpression of Rad52 confers resistance to ionizing radiation and induces homologous intrachromosomal recombination. Rad52 is thought to be involved in an early stage of Rad51-mediated recombination. Additional proteins involved in the pathway include Nibrin and Dmc1. Nibrin, which complexes with Mre11 and Rad50, is absent in Nijmegen breakage syndrome (NBS) patients. Dmc1 is specifically involved in meiotic recombination. An alternative spliced form of Dmc1, designated Dmc1-D, is deleted for a region between the two motifs involved in nucleotide binding. The alternatively spliced Dmc1-D transcript is detected in both male and female germ cells, indicating that the encoded protein may have a role in mammalian genetic recombination in meiosis.

## REFERENCES

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2. Muris, D.F., et al. 1994. Cloning of human and mouse genes homologous to Rad52, a yeast gene involved in DNA repair and recombination. Mutat. Res. 315: 295-305.
3. Park, M.S. 1995. Expression of human Rad52 confers resistance to ionizing radiation in mammalian cells. J. Biol. Chem. 270: 15467-15470.
4. Shen, Z., et al. 1996. Specific interactions between the human Rad51 and Rad52 proteins. J. Biol. Chem. 271: 148-152.
5. Lim, D.S. and Hasty, P. 1996. A mutation in mouse Rad51 results in an early embryonic lethal that is suppressed by a mutation in p53. Mol. Cell. Biol. 16: 7133-7143.
6. Boulikas, T. 1997. Nuclear import of DNA repair proteins. Anticancer Res. 17: 843-863.
7. Benson, F.E., et al. 1998. Synergistic actions of Rad51 and Rad52 in recombination and DNA repair. Nature 391: 401-404.
8. Masson, J.Y., et al. 1999. The meiosis-specific recombinase hDmc1 forms ring structures and interacts with hRad51. EMBO J. 18: 6552-6560.
9. Platt, G.M., et al. 2000. Detection of the human herpesvirus 8-encoded cyclin protein in primary effusion lymphoma-derived cell lines. Virology 272: 257-266.

## CHROMOSOMAL LOCATION

Genetic locus: DMC1 (human) mapping to 22q13.1; Dmc1 (mouse) mapping to 15 E1.

## SOURCE

Dmc1 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Dmc1 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-8972 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Dmc1 (N-19) is recommended for detection of Dmc1 and Dmc1-D of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Dmc1 (N-19) is also recommended for detection of Dmc1 and Dmc1-D in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Dmc1 siRNA (h): sc-37392, Dmc1 siRNA (m): sc-37393, Dmc1 shRNA Plasmid (h): sc-37392-SH, Dmc1 shRNA Plasmid (m): sc-37393-SH, Dmc1 shRNA (h) Lentiviral Particles: sc-37392-V and Dmc1 shRNA (m) Lentiviral Particles: sc-37393-V.

Molecular Weight of Dmc1: 37 kDa.

Molecular Weight of Dmc1-D: 31 kDa.

Positive Controls: rat testis extract: sc-2400 or human testis extract: sc-363781.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## STORAGE

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

## RESEARCH USE

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


 MONOS  
 Satisfaction  
 Guaranteed

Try **Dmc1 (A-6): sc-373862** or **Dmc1 (2H12/4): sc-53269**, our highly recommended monoclonal alternatives to Dmc1 (N-19).