

Dmc1 (C-20): sc-8973

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.

CHROMOSOMAL LOCATION

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

SOURCE

Dmc1 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-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-8973 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Dmc1 (C-20) 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), 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).

Dmc1 (C-20) is also recommended for detection of Dmc1 and Dmc1-D in additional species, including equine, canine, bovine, porcine and avian.

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.

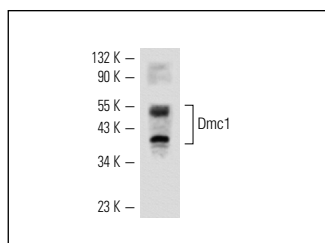
STORAGE

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.

DATA



Dmc1 (C-20): sc-8973. Western blot analysis of Dmc1 expression in human testis tissue extract.

SELECT PRODUCT CITATIONS

- Romanienko, P.J., et al. 2000. The mouse Spo11 gene is required for meiotic chromosome synapsis. *Mol. Cell* 6: 975-987.
- Petukhova, G., et al. 2003. The Hop2 protein has a direct role in promoting interhomolog interactions during mouse meiosis. *Development* 5: 927-936.
- Xu, X., et al. 2003. Impaired meiotic DNA-damage repair and lack of crossing-over during spermatogenesis in BRCA1 full-length isoform deficient mice. *Development* 130: 2001-2012.
- Petukhova, G.V., et al. 2005. The Hop2 and Mnd1 proteins act in concert with Rad51 and Dmc1 in meiotic recombination. *Nat. Struct. Mol. Biol.* 12: 449-453.
- Barrionuevo, F., et al. 2005. Homozygous inactivation of Sox-9 causes complete XY sex reversal in mice. *Biol. Reprod.* 74: 195-201.
- Yang, F., et al. 2008. Mouse TEX15 is essential for DNA double-strand break repair and chromosomal synapsis during male meiosis. *J. Cell Biol.* 180: 673-679.
- Dadhich, R.K., et al. 2011. Expression of genes controlling testicular development in adult testis of the seasonally breeding iberian mole. *Sex. Dev.* 5: 77-88.
- Lupiáñez, D.G., et al. 2012. Pattern and density of vascularization in mammalian testes, ovaries, and ovotestes. *J. Exp. Zool. B Mol. Dev. Evol.* 318: 170-181.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **Dmc1 (A-6): sc-373862** or **Dmc1 (2H12/4): sc-53269**, our highly recommended monoclonal alternatives to Dmc1 (C-20).