

Dmc1 (h3): 293T Lysate: sc-128471

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

1. Morita, T., et al. 1993. A mouse homolog of the *Escherichia coli* RecA and *Saccharomyces cerevisiae* Rad51 genes. *Proc. Natl. Acad. Sci. USA* 90: 6577-6580.
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. Yoshida, K., et al. 1998. The mouse RecA-like gene Dmc1 is required for homologous chromosome synapsis during meiosis. *Mol. Cell* 1: 707-718.
9. Carney, J.P., et al. 1998. The hMre11/hRad50 protein complex and Nijmegen breakage syndrome: linkage of double-strand break repair to the cellular DNA damage response. *Cell* 93: 477-486.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: DMC1 (human) mapping to 22q13.1.

PRODUCT

Dmc1 (h3): 293T Lysate represents a lysate of human Dmc1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

Dmc1 (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive Dmc1 antibodies. Recommended use: 10-20 µl per lane.

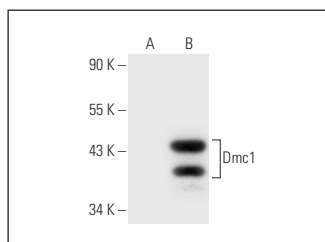
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

Dmc1 (E-6): sc-365747 is recommended as a positive control antibody for Western Blot analysis of enhanced human Dmc1 expression in Dmc1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

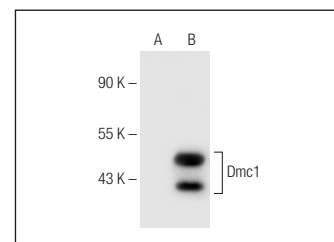
RECOMMENDED SUPPORT REAGENTS

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.

DATA



Dmc1 (E-6): sc-365747. Western blot analysis of Dmc1 expression in non-transfected: sc-117752 (A) and human Dmc1 transfected: sc-128471 (B) 293T whole cell lysates.



Dmc1 (F-2): sc-374364. Western blot analysis of Dmc1 expression in non-transfected: sc-117752 (A) and human Dmc1 transfected: sc-128471 (B) 293T whole cell lysates.

RESEARCH USE

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