SANTA CRUZ BIOTECHNOLOGY, INC.

Dmc1 (2H12/4): sc-53269

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 Nijemegen 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 (2H12/4) is a mouse monoclonal antibody raised against full-length Dmc1 of human 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.

STORAGE

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

APPLICATIONS

Dmc1 (2H12/4) is recommended for detection of Dmc1 of mouse, rat, human and bovine 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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.

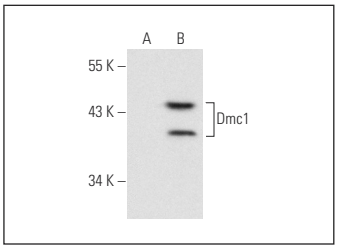
Molecular Weight of Dmc1-D: 31 kDa.

Positive Controls: rat testis extract: sc-2400, Dmc1 (h3): 293T Lysate: sc-128471 or human testis extract: sc-363781.

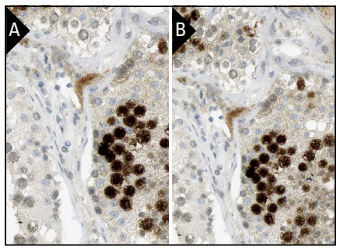
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Dmc1 (2D12/4): sc-53269. Western blot analysis of Dmc1 expression in non-transfected: sc-117752 (**A**) and human Dmc1 transfected: sc-128471 (**B**) 293T whole cell lysates.



Dmc1 (2H12/4): sc-53269. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear staining of cells in ductus seminiferus and Leydig cells at low (**A**) and high (**B**) magnification. Kindly provided by The Swedish Human Protein Atlas (HPA) program.

SELECT PRODUCT CITATIONS

1. Singh, V., et al. 2019. Azoospermic infertility is associated with altered expression of DNA repair genes. DNA Repair 75: 39-47.
2. Mizuta, K., et al. 2022. *Ex vivo* reconstitution of fetal oocyte development in humans and cynomolgus monkeys. EMBO J. 41: e110815.

RESEARCH USE

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

PROTOCOLS

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