SANTA CRUZ BIOTECHNOLOGY, INC.

Dmc1 (A-6): sc-373862

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 (A-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 67-99 within an internal region of Dmc1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Dmc1 (A-6) is available conjugated to agarose (sc-373862 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-373862 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373862 PE), fluorescein (sc-373862 FITC), Alexa Fluor® 488 (sc-373862 AF488), Alexa Fluor® 546 (sc-373862 AF546), Alexa Fluor® 594 (sc-373862 AF594) or Alexa Fluor® 647 (sc-373862 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373862 AF680) or Alexa Fluor® 790 (sc-373862 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-373862 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

PROTOCOLS

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

APPLICATIONS

Dmc1 (A-6) is recommended for detection of Dmc1 and Dmc1-D of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 (A-6) is also recommended for detection of Dmc1 and Dmc1-D in additional species, including equine, canine, bovine, porcine and avian.

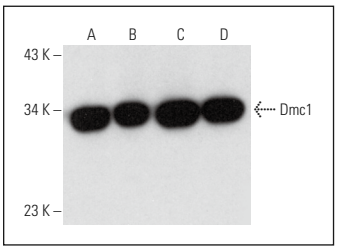
Suitable for use as control antibody for Dmc1 siRNA (h): sc-37392, Dmc1 siRNA (m): sc-37393, Dmc1 shRNA Plasmid (h): sc-37392-SH, Dmc1 shRNA Plasmid (m): sc-37393-SH, Dmc1 shRNA (h) Lentiviral Particles: sc-37392-V and Dmc1 shRNA (m) Lentiviral Particles: sc-37393-V.

Molecular Weight of Dmc1: 37 kDa.

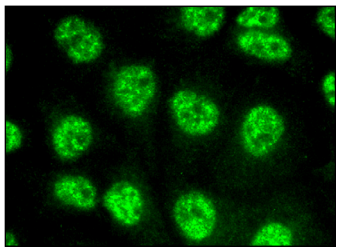
Molecular Weight of Dmc1-D: 31 kDa.

Positive Controls: RPE-J cell lysate: sc-24771, F9 cell lysate: sc-2245 or PC-12 cell lysate: sc-2250.

DATA



Dmc1 (A-6): sc-373862. Western blot analysis of Dmc1 expression in F9 (**A**), JC (**B**), PC-12 (**C**) and RPE-J (**D**) whole cell lysates.



Dmc1 (A-6): sc-373862. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Abreu, C.M., et al. 2018. Shu complex SWS1-SWSAP1 promotes early steps in mouse meiotic recombination. Nat. Commun. 9: 3961.
2. Ji, Z., et al. 2021. Novel hemizygous mutations of TEX11 cause meiotic arrest and non-obstructive azoospermia in Chinese Han population. Front. Genet. 12: 741355.
3. Li, P., et al. 2022. Novel bi-allelic MSH4 variants causes meiotic arrest and non-obstructive azoospermia. Reprod. Biol. Endocrinol. 20: 21.
4. Huang, Y., et al. 2022. Novel copy number variations within SYCE1 caused meiotic arrest and non-obstructive azoospermia. BMC Med. Genomics 15: 137.
5. Nitahara, K., et al. 2024. Chromatin remodeler CHD8 is required for spermatogonial proliferation and early meiotic progression. Nucleic Acids Res. 52: 2995-3010.

RESEARCH USE

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