SANTA CRUZ BIOTECHNOLOGY, INC.

Nibrin (1D7): sc-56166

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 Dmc1 and Nibrin. Dmc1 is specifically involved in meiotic recombination. Nibrin, which complexes with Mre11 and Rad50, is absent in Nijemegen breakage syndrome (NBS) patients.

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., et al. 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.

CHROMOSOMAL LOCATION

Genetic locus: NBN (human) mapping to 8q21; Nbn (mouse) mapping to 4 A.

SOURCE

Nibrin (1D7) is a mouse monoclonal antibody raised against Nibrin of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

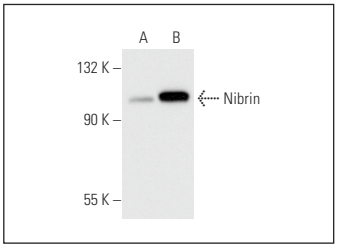
Nibrin (1D7) is recommended for detection of Nibrin of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Nibrin siRNA (h): sc-36061, Nibrin siRNA (m): sc-36062, Nibrin shRNA Plasmid (h): sc-36061-SH, Nibrin shRNA Plasmid (m): sc-36062-SH, Nibrin shRNA (h) Lentiviral Particles: sc-36061-V and Nibrin shRNA (m) Lentiviral Particles: sc-36062-V.

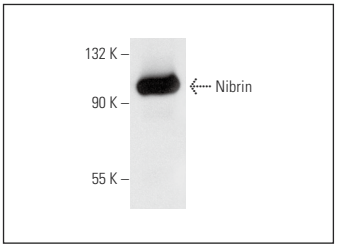
Molecular Weight of Nibrin: 95 kDa.

Positive Controls: Nibrin (m): 293T Lysate: sc-125706, HeLa whole cell lysate: sc-2200 or HeLa nuclear extract: sc-2120.

DATA



Nibrin (1D7): sc-56166. Western blot analysis of Nibrin expression in non-transfected: sc-117752 (**A**) and mouse Nibrin transfected: sc-125706 (**B**) 293T whole cell lysates.



Nibrin (1D7): sc-56166. Western blot analysis of Nibrin expression in HeLa whole cell lysate.

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.

PROTOCOLS

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