

NuMA (A73-B/D12): sc-56325

BACKGROUND

There are a multitude of structural components in the nucleus that sustain proper structure and function relationships with respect to nuclear assembly and mitosis. The human nuclear mitotic apparatus protein gene, also designated NuMA, maps to chromosome 11q13.4 and encodes a noncentrosomal protein. NuMA possesses microtubule (MT) binding capacity via its carboxyl terminal region and is involved in spindle pole organization. NuMA is essential for the organization and stabilization of spindle poles from early mitosis until at least the onset of anaphase. During interphase, NuMA is present throughout the nucleus and upon entering mitosis, localizes to the spindle apparatus. During mitosis, NuMA forms aggregates that interact with microtubules and certain motor proteins and as a result may draw together the minus-ends of microtubules, thereby helping to organize them into a bipolar spindle. In contrast to mitotic cells, post-mitotic neurons display NuMA both in the nucleus and in the cytoplasm. Elevated levels of NuMA expression have been reported in cancer patients, particularly in colorectal carcinoma and early colorectal cancers.

REFERENCES

- Lydersen, B.K. and Pettijohn, D.E. 1980. Human-specific nuclear protein that associates with the polar region of the mitotic apparatus: distribution in a human/hamster hybrid cell. *Cell* 22: 489-499.
- Sparks, C.A., et al. 1993. Assignment of the nuclear mitotic apparatus protein NuMA gene to human chromosome 11q13. *Genomics* 17: 222-224.
- Ferhat, L., et al. 1998. The nuclear/mitotic apparatus protein NuMA is a component of the somatodendritic microtubule arrays of the neuron. *J. Neurocytol.* 27: 887-899.
- Hasholzner, U., et al. 1999. Nuclear mitotic apparatus protein (NuMA) in benign and malignant diseases. *Anticancer Res.* 19: 2415-2420.
- Zeng, C. 2000. NuMA: a nuclear protein involved in mitotic centrosome function. *Microsc. Res. Tech.* 49: 467-477.
- Gordon, M.B., et al. 2001. Chromosome movement in mitosis requires microtubule anchorage at spindle poles. *J. Cell Biol.* 152: 425-434.
- Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MIM Number: 164009. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: NUMA1 (human) mapping to 11q13.4.

SOURCE

NuMA (A73-B/D12) is a mouse monoclonal antibody raised against Ls 174T cell line of human origin.

PRODUCT

Each vial contains 50 µg IgM in 500 µl PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

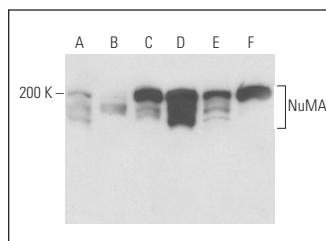
NuMA (A73-B/D12) is recommended for detection of NuMA (found in the nucleus during interphase) of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for NuMA siRNA (h): sc-43978, NuMA shRNA Plasmid (h): sc-43978-SH and NuMA shRNA (h) Lentiviral Particles: sc-43978-V.

Molecular Weight of NuMA: 240 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, MOLT-4 nuclear extract: sc-2151 or A-673 nuclear extract: sc-2128.

DATA



NuMA (A73-B/D12): sc-56325. Western blot analysis of NuMA expression in A549 (A), HeLa (B), MOLT-4 (C), A-673 (D), MCF7 (E) and CCRF-CEM (F) nuclear extracts.

SELECT PRODUCT CITATIONS

- Sarnowska, A., et al. 2013. Encapsulation of mesenchymal stem cells by bioscaffolds protects cell survival and attenuates neuroinflammatory reaction in injured brain tissue after transplantation. *Cell Transplant.* 22: S67-S82.
- Stolz, A., et al. 2015. A phenotypic screen identifies microtubule plus end assembly regulators that can function in mitotic spindle orientation. *Cell Cycle* 14: 827-837.
- Yang, C., et al. 2021. Nuclear IGF1R interacts with NuMA and regulates 53BP1-dependent DNA double-strand break repair in colorectal cancer. *Oncol. Rep.* 46: 168.

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.