

## BACKGROUND

NuMA1 is a high molecular weight (238 kDa) protein, encoded by the *NuMA1* gene in human. It was described to have exclusive nuclear localization in interphase cells and to associate with the spindle poles during mitosis.<sup>1</sup>

The NuMA1 molecule is comprised of globular head and tail domains separated by a 1500 amino acid discontinuous coiled-coil. The C-terminus contains a nuclear localization signal (NLS) and a 100 amino acid stretch that directly binds and bundles microtubules. In addition, both globular domains contain several S/TPXX motifs, sequences found in gene regulatory proteins and thought to bind DNA. siRNA-mediated depletion and knockout strategies in mice have implicated NuMA1 as an essential protein.<sup>2</sup> Taken together, these features make NuMA1 an excellent candidate for an important structural component both in the nucleus and at the spindle poles.

NuMA1 is widely expressed in different cell types and tissues including in the whole embryo. The major function of NuMA is to form a complex with dynein and dynactin, the dynein activator/processivity complex, and to provide an essential stabilizing structure for the microtubule-centrosome interaction at the spindle pole. In its absence, centrosomes lose their attachment to kinetochore fibers and spindle poles are unfocused.<sup>3</sup>

NuMA1 is also involved in spindle positioning and asymmetric cell division along with Gα and human Gα regulator, LGN. In addition, NuMA1 might also have a role as a nuclear scaffold that supports the dynamic organization of the genome, while at the same time providing structure to the post-mitotic nucleus over the long term.

### References:

1. Lydersen, R. K. et al: Cell 22:489-499, 1980.
2. Compton, D. A. et al: J. Cell Biol. 116:1395-1408, 1992.
3. Mastronarde, D. N. et al: J. Cell Biol. 123:1475-1489, 1993.

## TECHNICAL INFORMATION

**Source:** NuMA1 Antibody is a rabbit antibody raised against a short peptide from human Numa1 sequence.

**Specificity and Sensitivity:** This antibody detects endogenous NuMA1 proteins without cross-reactivity with other family members.

**Storage Buffer:** PBS and 50% glycerol

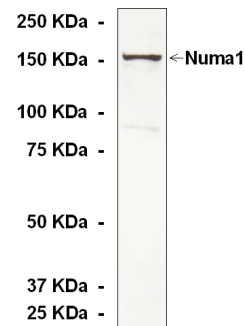
**Storage:** Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## APPLICATIONS

Application:	*Dilution:
WB	1:500-1000
IP	n/d
IHC	n/d
ICC	n/d
FACS	n/d

*\*Optimal dilutions must be determined by end user.*

## QUALITY CONTROL DATA



Western Blot detecting of Numa1 proteins in MCF7 cell lysate using Numa1 Antibody.

