

Rabbit anti-Human NuMA Polyclonal Antibody | anti-NuMA antibody

Phospho-NuMA (Ser395) Antibody

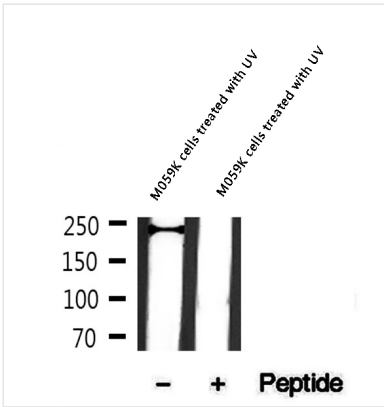
CATALOG # AAA321357	HOST Rabbit	REACTIVITY Human	APPLICATIONS Immunohistochemistry, Western Blot
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PRODUCT SYNONYMS

NuMA; Polyclonal Antibody; Phospho-NuMA (Ser395) Antibody; Centrophilin stabilizes mitotic spindle in mitotic cells; NMP 22; Nuclear matrix protein 22; Nuclear mitotic apparatus protein 1; Nuclear mitotic apparatus protein; NUMA 1; NUMA; NuMA protein; NUMA1; NUMA1_HUMAN; SP H antigen; SP-H antigen; Structural nuclear protein; anti-NuMA antibody

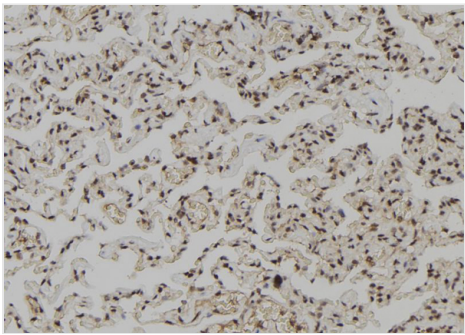
PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human
Clonality	Polyclonal
Isotype	IgG
Specificity	Phospho-NuMA (Ser395) antibody detects endogenous levels of NuMA.
Purity/Purification	From purified rabbit serum by affinity purification via sequential chromatography on phospho- and non-phospho-peptide affinity columns.
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Sequence Length	2101
Applicable Applications for anti-NuMA antibody	IHC (Immunohistochemistry), WB (Western Blot)
Immunogen	A synthesized peptide derived from human NuMA around the phosphorylation site of Ser395.
Subcellular Location	Nucleus. Chromosome. Dissociates from condensing chromosomes during early prophase, before the complete disintegration of the nuclear lamina. As mitosis progresses it reassociates with telophase chromosomes very early during nuclear reformation, before substantial accumulation of lamins on chromosomal surfaces is evident.
Predicted Cross Reactivity	Dog, Chicken
Similarity	Dog (83%), Chicken (86%)
Conjugation	Unconjugated
Epitope	Phospho Ser395
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.



WB (Western Blot)

Western blot analysis of extracts of M059K cells treated with UV, using Phospho-NuMA (Ser395) Antibody.



IHC (Immunohistochemistry)

AAA321357 at 1/100 staining Human lung tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.

Related Product Information for anti-NuMA antibody

Function: Microtubule (MT)-binding protein that plays a role in the formation and maintenance of the spindle poles and the alignment and the segregation of chromosomes during mitotic cell division (PubMed:7769006, PubMed:17172455, PubMed:19255246, PubMed:24996901, PubMed:26195665, PubMed:27462074). Functions to tether the minus ends of MTs at the spindle poles, which is critical for the establishment and maintenance of the spindle poles (PubMed:12445386, PubMed:11956313). Plays a role in the establishment of the mitotic spindle orientation during metaphase and elongation during anaphase in a dynein-dynactin-dependent manner (PubMed:23870127, PubMed:24109598, PubMed:24996901, PubMed:26765568). In metaphase, part of a ternary complex composed of GPM2 and G(i) alpha proteins, that regulates the recruitment and anchorage of the dynein-dynactin complex in the mitotic cell cortex regions situated above the two spindle poles, and hence regulates the correct orientation of the mitotic spindle (PubMed:23027904, PubMed:22327364, PubMed:23921553). During anaphase, mediates the recruitment and accumulation of the dynein-dynactin complex at the cell membrane of the polar cortical region through direct association with phosphatidylinositol 4, 5-bisphosphate (PI(4, 5)P2), and hence participates in the regulation of the spindle elongation and chromosome segregation (PubMed:22327364, PubMed:23921553, PubMed:24996901, PubMed:24371089). Binds also to other polyanionic phosphoinositides, such as phosphatidylinositol 3-phosphate (PIP), lysophosphatidic acid (LPA) and phosphatidylinositol triphosphate (PIP3), in vitro (PubMed:24996901, PubMed:24371089). Also required for proper orientation of the mitotic spindle during asymmetric cell divisions (PubMed:21816348). Plays a role in mitotic MT aster assembly (PubMed:11163243, PubMed:11229403, PubMed:12445386). Involved in astral spindle assembly (PubMed:25657325). Positively regulates TNKS protein localization to spindle poles in mitosis (PubMed:16076287). Highly abundant component of the nuclear matrix where it may serve a non-mitotic structural role, occupies the majority of the nuclear volume (PubMed:10075938). Required for epidermal differentiation and hair follicle morphogenesis (By similarity).

Subunit Structure: Homodimer (PubMed:10075938). Also forms multiarm oligomers by association of C-terminal tail domains, oligomers may further assemble to form a hexagonal nuclear lattice-like network (PubMed:10075938).

Associates with the dynein-dynactin complex; this association promotes the transport and accumulation of NUMA1 at the mitotic spindle poles that is inhibited by the BRISC complex in a PLK1-dependent manner (PubMed:10811826, PubMed:17172455, PubMed:23027904, PubMed:22327364, PubMed:26195665). Part of a spindle orientation complex at least composed of GNAI1, GPM2 and NUMA1 (PubMed:26766442). Interacts (via C-terminus) with microtubules (MTs); this interaction is direct and promotes both MT bundle formation and stability in a dynein-dynactin complex- and CDK1-independent manner (PubMed:12445386, PubMed:11956313, PubMed:26765568). Interacts with EPB41 and EPB41L2; these interactions are negatively regulated by CDK1 during metaphase and are important for anaphase-specific localization of NUMA1 in symmetrically dividing cells (PubMed:23870127, PubMed:24996901). Interacts (via C-terminus) with GPM2 (via TPR repeats); this interaction is direct, prevented by competitive binding of INSC, is inhibited in a PLK1-dependent manner, blocks the association of NUMA1 with MTs and inhibits NUMA1-induced MT bundle formation, prevents the association of NUMA1 with SPAG5, induces mitotic spindle pole localization of GPM2, both metaphase cell cortex localization of NUMA1 and mitotic spindle organization (PubMed:11781568, PubMed:12445386, PubMed:22327364, PubMed:24109598, PubMed:27462074, PubMed:21816348). Does not interact with GPM2 during anaphase (PubMed:23870127). Interacts (via C-terminus) with the nuclear importin alpha/importin beta receptor; this interaction is inhibited by RanGTP (PubMed:11163243). Interacts (via C-terminus) with KPNB1; this interaction is inhibited by RanGTP and the BRISC complex (PubMed:11229403, PubMed:26195665). Interacts with ABRAXAS2 and the BRISC complex; these interactions regulate mitotic spindle assembly (PubMed:26195665). Interacts (via N-terminal end of the coiled-coil domain) with RAE1; this interaction promotes mitotic spindle formation (PubMed:17172455). Interacts (via C-terminus) with SPAG5 (via C-terminus); this interaction promotes the recruitment of SPAG5 to the MTs at spindle poles in a dynein-dynactin-dependent manner and regulates mitotic spindle organization and proper chromosome alignment during mitosis (PubMed:27462074). Interacts with TNKS; this interaction occurs at the onset of mitosis (PubMed:12080061, PubMed:16076287). Interacts with TNKS2 (PubMed:12080061). Interacts with tubulin (PubMed:11956313).

Post-translational Modifications: Phosphorylation and dephosphorylation on Thr-2055 regulates the extent of cortical NUMA1 and the dynein-dynactin complex localization during mitotic metaphase and anaphase (PubMed:23921553). In metaphase, phosphorylation on Thr-2055 occurs in a kinase CDK1-dependent manner; this phosphorylation maintains low levels of cortical dynein-dynactin complex at metaphase, and hence proper spindle positioning (PubMed:7769006, PubMed:23921553, PubMed:24371089). In anaphase, dephosphorylated on Thr-2055 by phosphatase PPP2CA; this dephosphorylation stimulates its membrane association and with the dynein-dynactin complex its enrichment at the cell cortex, and hence robust spindle elongation (PubMed:23921553, PubMed:24371089). Probably also phosphorylated on Thr-2015 and Ser-2087 by CDK1; these phosphorylations may regulate its cell cortex recruitment during metaphase and anaphase (PubMed:23870127). Phosphorylated on Thr-1047, Ser-1769, Ser-1772, Ser-1789 and Ser-1834 by PLK1; these phosphorylations induce cortical dynein-dynactin complex dissociation from the NUMA1-GPM2 complex and negatively regulates cortical dynein-dynactin complex localization (PubMed:22327364). ADP-ribosylated by TNKS at the onset of mitosis; ADP-ribosylation is not required for its localization to spindle poles (PubMed:16076287). O-glycosylated during cytokinesis at sites identical or close to phosphorylation sites, this interferes with the phosphorylation status (PubMed:20068230). Ubiquitinated with 'Lys-63'-linked polyubiquitin chains. Deubiquitination by the BRISC complex is important for the incorporation of NUMA1 into mitotic spindle poles and normal spindle pole function, probably by modulating interactions between NUMA1, dynein-dynactin complex and importin-beta.

Similarity: The C-terminal tubulin-binding domain mediates direct binding to microtubules, independently of dynein-dynactin complex, and induces their bundling and stabilization (PubMed:11956313). The 4.1-binding domain is necessary for its cortical stability and spindle orientation (PubMed:24109598).

NCBI AND UNIPROT INFORMATION

NCBI GI #	557440899
NCBI GeneID	4926
NCBI Accession #	NP_001273490.1
NCBI GenBank Nucleotide #	NM_001286561.1
UniProt Accession #	Q14980; Q14981; Q9BTE9; H0YH75
Molecular Weight	Observed: 238 kDa Predicted: 239 kDa
NCBI Official Full Name	nuclear mitotic apparatus protein 1 isoform 2
NCBI Official Synonym Full Names	nuclear mitotic apparatus protein 1
NCBI Official Symbol	NUMA1
NCBI Official Synonym Symbols	NUMA; NMP-22
NCBI Protein Information	nuclear mitotic apparatus protein 1
UniProt Protein Name	Nuclear mitotic apparatus protein 1
UniProt Gene Name	NUMA1
UniProt Synonym Gene Names	NMP221 PublicationManual assertion based on opinion iniRef.10; NMP-221 PublicationManual assertion based on opinion iniRef.10; NuMA protein2 PublicationsManual assertion based on opinion iniRef.1

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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