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Nudel Antibody

Catalog # ASC10163

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q9GZM8
Other Accession	AAF97497, 12043569
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	38375
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	Nudel antibody can be used for detection of Nudel by Western blot at 0.5 - 2 g/mL. Antibody can also be used for immunocytochemistry starting at 2 g/mL. For immunofluorescence start at 10 g/mL.

Additional Information

Gene ID	81565
Other Names	Nudel Antibody: EOPA, NDE2, NUDEL, MITAP1, NDE1L1, EOPA, Nuclear distribution protein nudE-like 1, Mitosin-associated protein 1, Protein Nudel, nudE nuclear distribution gene E homolog (A. nidulans)-like 1
Target/Specificity	NDEL1;
Reconstitution & Storage	Nudel antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	Nudel Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NDEL1
Synonyms	EOPA, MITAP1, NUDEL
Function	Required for organization of the cellular microtubule array and microtubule anchoring at the centrosome. May regulate microtubule organization at least in part by targeting the microtubule severing protein KATNA1 to the centrosome. Also positively regulates the activity of the minus-end directed microtubule motor protein dynein. May enhance dynein-mediated microtubule sliding by targeting dynein to the microtubule plus ends.

	Required for several dynein- and microtubule-dependent processes such as the maintenance of Golgi integrity, the centripetal motion of secretory vesicles and the coupling of the nucleus and centrosome. Also required during brain development for the migration of newly formed neurons from the ventricular/subventricular zone toward the cortical plate. Plays a role, together with DISC1, in the regulation of neurite outgrowth. Required for mitosis in some cell types but appears to be dispensible for mitosis in cortical neuronal progenitors, which instead requires NDE1. Facilitates the polymerization of neurofilaments from the individual subunits NEFH and NEFL. Positively regulates lysosome peripheral distribution and ruffled border formation in osteoclasts (By similarity). Plays a role, together with DISC1, in the regulation of neurite outgrowth (By similarity). May act as a RAB9A/B effector that tethers RAB9-associated late endosomes to the dynein motor for their retrograde transport to the trans-Golgi network (PubMed:34793709).
Cellular Location	Cytoplasm, cytoskeleton. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Chromosome, centromere, kinetochore. Cytoplasm, cytoskeleton, spindle. Note=Localizes to the cell body of the motor neurons and colocalizes with assembled neurofilaments within axonal processes. Localizes to the microtubules of the manchette in elongated spermatids. Colocalizes with DISC1 in the perinuclear region, including the centrosome (By similarity). Localizes to the interphase centrosome and the mitotic spindle. Localizes to the kinetochore in a CENPF-dependent manner.
Tissue Location	Expressed in brain, heart, kidney, liver, lung, pancreas, placenta and skeletal muscle.

Background

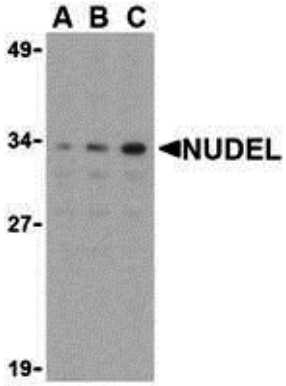
Nudel Antibody: Nudel was initially discovered as a protein homologous to Aspergillus NUDE and that associated with Lis1 and polyprotein complex cytoplasmic dynein, both of which have been linked to neuronal development and migration. It was later shown to be a substrate of cdk5, a kinase known to be critical during neuronal migration; phosphorylation of Nudel by cdk5 affects its localization in neurons and affects neuritic morphology. It is thought that together with Lis1, Nudel regulates cytoplasmic dynein, a large polyprotein complex, in neuronal migration and mitosis through direct interactions. Similar interactions are thought to also play a role in membrane traffic in other cells as disruption of Nudel expression through RNA interference perturbed normal endomembrane flux and resulted in the fragmentation of the Golgi apparatus.

References

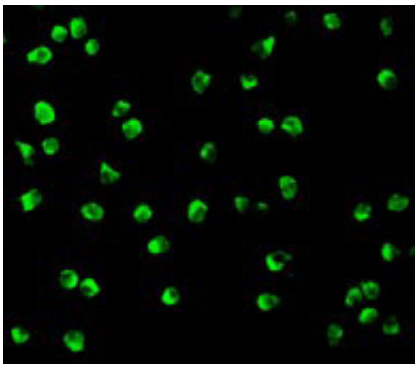
Niethammer H, Smith DS, Ayala R, et al. NUDEL is a novel Cdk5 substrate that associates with LIS1 and cytoplasmic dynein. Neuron 2000; 28:697-711.
Liu Z, Steward R, and Luo L. Drosophila Lis1 is required for neuroblast proliferation, dendritic elaboration and axonal transport. Nat. Cell Biol. 2000; 2:776-83.
Gupta A and Tsai LH. Cyclin-dependent kinase 5 and neuronal migration in the neocortex. Neurosignals 2003; 12:173-9.
Liang Y, Yu W, Li Y, et al. Nudel functions in membrane traffic mainly through association with Lis1 and cytoplasmic dynein. J. Cell Biol. 2004; 164:557-66.

Images

Western blot analysis of Nudel in Jurkat whole cell lysate with Nudel antibody at (A) 0.5, (B) 1, or (C) 2 µg/mL.



Immunocytochemistry of Nudel in Jurkat cells with Nudel antibody at 2 µg/mL.



Immunofluorescence of Nudel in Jurkat cells with Nudel antibody at 10 µg/mL.