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NEK2 Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AW5180

Product Information

Application	IHC-P, IF, WB
Primary Accession	P51955
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	51763
Isotype	Rabbit IgG
Antigen Source	HUMAN

Additional Information

Gene ID	4751
Antigen Region	396-426
Other Names	NEK2; NEK2A; NLK1; Serine/threonine-protein kinase Nek2; HSPK 21; Never in mitosis A-related kinase 2; NimA-like protein kinase 1
Dilution	IHC-P~~1:100 IF~~1:25 WB~~1:1000
Target/Specificity	This NEK2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 396-426 amino acids from the Central region of human NEK2.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	NEK2 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NEK2
Synonyms	NEK2A, NLK1
Function	Protein kinase which is involved in the control of centrosome separation and

	bipolar spindle formation in mitotic cells and chromatin condensation in meiotic cells. Regulates centrosome separation (essential for the formation of bipolar spindles and high-fidelity chromosome separation) by phosphorylating centrosomal proteins such as CROCC, CEP250 and NINL, resulting in their displacement from the centrosomes. Regulates kinetochore microtubule attachment stability in mitosis via phosphorylation of NDC80. Involved in regulation of mitotic checkpoint protein complex via phosphorylation of CDC20 and MAD2L1. Plays an active role in chromatin condensation during the first meiotic division through phosphorylation of HMGA2. Phosphorylates: PPP1CC; SGO1; NECAB3 and NPM1. Essential for localization of MAD2L1 to kinetochore and MAPK1 and NPM1 to the centrosome. Phosphorylates CEP68 and CNTLN directly or indirectly (PubMed:24554434). NEK2-mediated phosphorylation of CEP68 promotes CEP68 dissociation from the centrosome and its degradation at the onset of mitosis (PubMed:25704143). Involved in the regulation of centrosome disjunction (PubMed:26220856). Phosphorylates CCDC102B either directly or indirectly which causes CCDC102B to dissociate from the centrosome and allows for centrosome separation (PubMed:30404835).
Cellular Location	[Isoform 1]: Nucleus. Nucleus, nucleolus. Cytoplasm. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Cytoplasm, cytoskeleton, spindle pole Chromosome, centromere, kinetochore. Chromosome, centromere. Note=STK3/MST2 and SAV1 are required for its targeting to the centrosome. Colocalizes with SGO1 and MAD1L1 at the kinetochore Not associated with kinetochore in the interphase but becomes associated with it upon the breakdown of the nuclear envelope. Has a nucleolar targeting/ retention activity via a coiled-coil domain at the C-terminal end [Isoform 4]: Nucleus. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Note=Predominantly nuclear
Tissue Location	Isoform 1 and isoform 2 are expressed in peripheral blood T-cells and a wide variety of transformed cell types. Isoform 1 and isoform 4 are expressed in the testis. Up-regulated in various cancer cell lines, as well as primary breast tumors

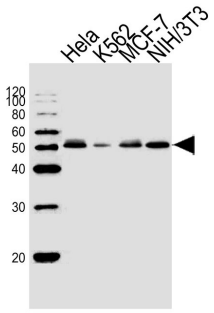
Background

Protein kinases are enzymes that transfer a phosphate group from a phosphate donor, generally the g phosphate of ATP, onto an acceptor amino acid in a substrate protein. By this basic mechanism, protein kinases mediate most of the signal transduction in eukaryotic cells, regulating cellular metabolism, transcription, cell cycle progression, cytoskeletal rearrangement and cell movement, apoptosis, and differentiation. With more than 500 gene products, the protein kinase family is one of the largest families of proteins in eukaryotes. The family has been classified in 8 major groups based on sequence comparison of their tyrosine (PTK) or serine/threonine (STK) kinase catalytic domains. The STE group (homologs of yeast Sterile 7, 11, 20 kinases) consists of 50 kinases related to the mitogen-activated protein kinase (MAPK) cascade families (Ste7/MAP2K, Ste11/MAP3K, and Ste20/MAP4K). MAP kinase cascades, consisting of a MAPK and one or more upstream regulatory kinases (MAPKKs) have been best characterized in the yeast pheromone response pathway. Pheromones bind to Ste cell surface receptors and activate yeast MAPK pathway.

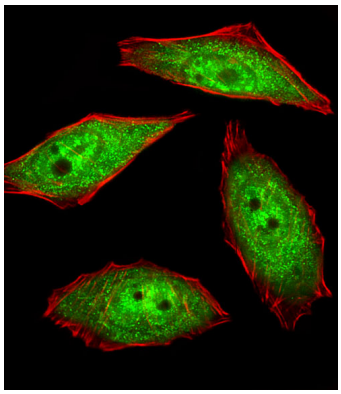
References

Chen, Y., et al., J. Biol. Chem. 277(51):49408-49416 (2002). Eto, M., et al., J. Biol. Chem. 277(46):44013-44020 (2002). Schutte, B.C., et al., Genome Res. 10(1):81-94 (2000). Fry, A.M., et al., EMBO J. 17(2):470-481 (1998). Schultz, S.J., et al., Cell Growth Differ. 5(6):625-635 (1994).

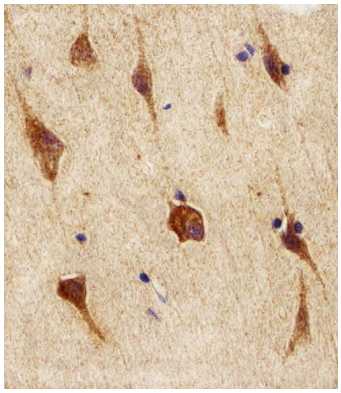
Images



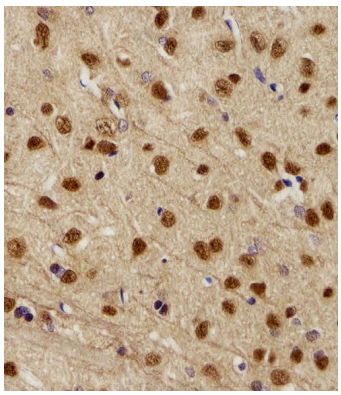
Western blot analysis of lysates from Hela,K562,MCF-7,mouse NIH/3T3 cell line (from left to right), using NEK2 Antibody (C410)(Cat. #AW5180). AW5180 was diluted at 1:1000 at each lane. A goat anti-rabbit IgG H&L(HRP) at 1:10000 dilution was used as the secondary antibody.



Fluorescent image of U251 cells stained with hNEK2-C410 (Cat#AW5180). AW5180 was diluted at 1:25 dilution. An Alexa Fluor 488-conjugated goat anti-rabbit lgG at 1:400 dilution was used as the secondary antibody (green). Cytoplasmic actin was counterstained with Alexa Fluor® 555 conjugated with Phalloidin (red).

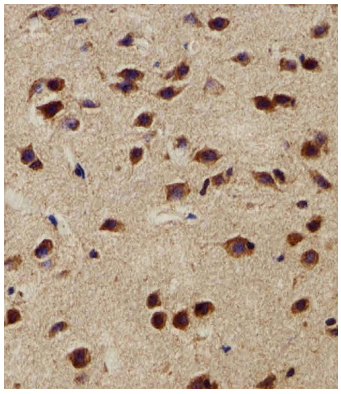


Immunohistochemical analysis of paraffin-embedded H. brain section using NEK2 Antibody(Center)(Cat#AW5180). AW5180 was diluted at 1:100 dilution. A peroxidase-conjugated goat anti-rabbit IgG at 1:400 dilution was used as the secondary antibody, followed by DAB staining.



Immunohistochemical analysis of paraffin-embedded R. brain section using NEK2 Antibody(Center)(Cat#AW5180). AW5180 was diluted at 1:100 dilution. A peroxidase-conjugated goat anti-rabbit IgG at 1:400 dilution was used as the secondary antibody, followed by DAB staining.

Immunohistochemical analysis of paraffin-embedded M. brain section using NEK2 Antibody(Center)(Cat#AW5180). AW5180 was diluted at 1:100 dilution. A peroxidase-conjugated goat anti-rabbit IgG at 1:400 dilution was used as the secondary antibody, followed by DAB staining.



Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.