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NEK2 Antibody (Center)
Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AW5180

Specification

NEK2 Antibody (Center) - Product Information

Application	**IF, WB, IHC-P,E**
Primary Accession	P51955
Reactivity	**Human, Mouse**
Host	**Rabbit**
Clonality	**Polyclonal**
Calculated MW	**H=52,51;M=51 KDa**
Isotype	**Rabbit IgG**
Antigen Source	**HUMAN**

NEK2 Antibody (Center) - 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
IF~~1:25
WB~~1:1000
IHC-P~~1:100

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.

NEK2 Antibody (Center) - 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

NEK2 Antibody (Center) - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

NEK2 Antibody (Center) - Images

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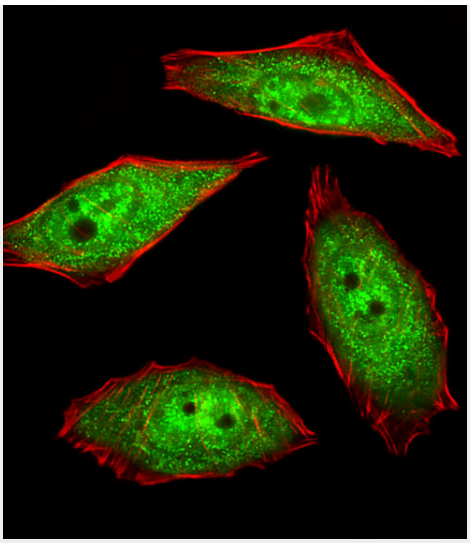
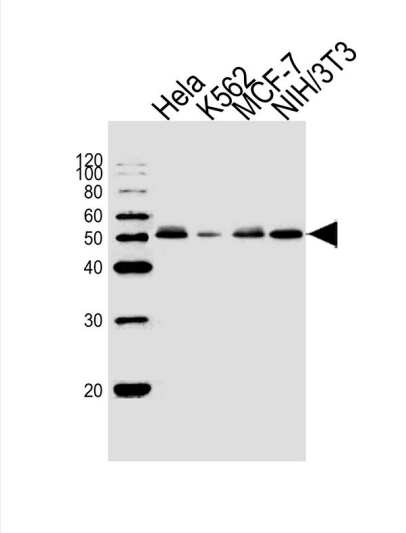


Fluorescent image of U251 cells stained with hNEK2-C410 (Cat#AW5180). AW5180 was diluted at 1:25 dilution. An Alexa Fluor 488-conjugated goat anti-rabbit IgG at 1:400 dilution was used as the secondary antibody (green). Cytoplasmic actin was counterstained with Alexa Fluor® 555 conjugated with Phalloidin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



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.

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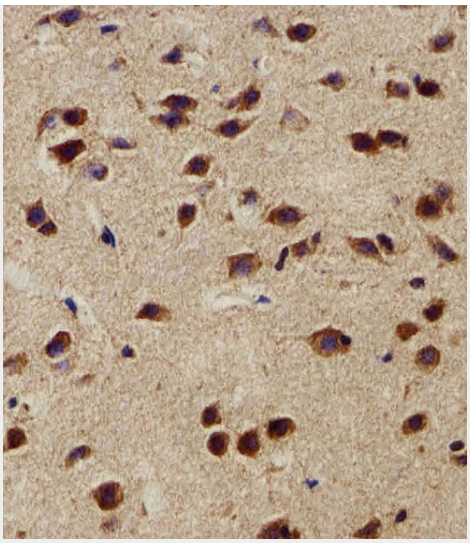
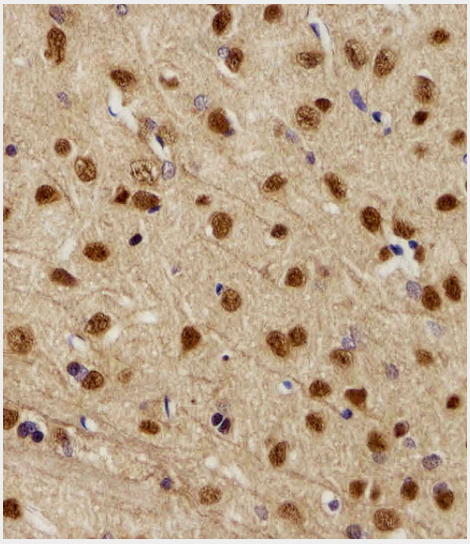


Immunohistochemical analysis of paraffin-embedded M. brain section using NEK2 Antibody(Center)(Cat#AW5180). AW5180 was diluted at 1:100 dilution. A peroxidase-conjugated goat anti-rabbit IgG at 1:400 dilution was used as the secondary antibody, followed by DAB staining.



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.

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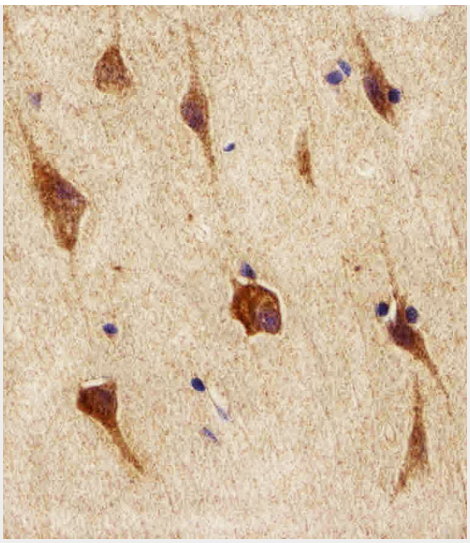

Immunohistochemical analysis of paraffin-embedded H. brain section using NEK2 Antibody(Center)(Cat#AW5180). AW5180 was diluted at 1:100 dilution. A peroxidase-conjugated goat anti-rabbit IgG at 1:400 dilution was used as the secondary antibody, followed by DAB staining.

NEK2 Antibody (Center) - 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.

NEK2 Antibody (Center) - 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).