10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

NEK2 Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8074c

Product Information

Application	WB, E
Primary Accession	P51955
Reactivity	Human, Mouse
Predicted	Rat, Bovine, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	51763
Antigen Region	396-426

Additional Information

Gene ID	4751
Other Names	Serine/threonine-protein kinase Nek2, HSPK 21, Never in mitosis A-related kinase 2, NimA-related protein kinase 2, NimA-like protein kinase 1, NEK2, NEK2A, NLK1
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.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
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

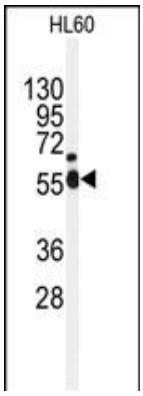
Background

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 anti-NEK2 Antibody (Center) (Cat.#AP8074c) in HL60 cell line lysates (35ug/lane). NEK2(arrow) was detected using the purified Pab.

Citations

- Overexpression of the E2 ubiquitin-conjugating enzyme UbcH10 causes chromosome missegregation and tumor formation.
- Increased expression and nuclear localization of the centrosomal kinase Nek2 in human testicular seminomas.
- The centrosomal kinase NEK2 is a novel splicing factor kinase involved in cell survival.
- MicroRNA-128 promotes apoptosis in lung cancer by directly targeting NIMA-related kinase 2.
- NEK2 regulates stem-like properties and predicts poor prognosis in hepatocellular carcinoma.

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