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

ARK5 Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8066A

Product Information

Application	WB, IHC-P, E
Primary Accession	O60285
Reactivity	Human, Hamster, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	74305
Antigen Region	1-30

Additional Information

Gene ID	9891
Other Names	NUAK family SNF1-like kinase 1, AMPK-related protein kinase 5, ARK5, Omphalocele kinase 1, NUAK1, ARK5, KIAA0537, OMPHK1
Target/Specificity	This ARK5 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 1-30 amino acids from the N-terminal region of human ARK5.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
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	ARK5 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NUAK1
Synonyms	ARK5, KIAA0537, OMPHK1
Function	Serine/threonine-protein kinase involved in various processes such as cell adhesion, regulation of cell ploidy and senescence, cell proliferation and tumor progression. Phosphorylates ATM, CASP6, LATS1, PPP1R12A and

	p53/TP53. Acts as a regulator of cellular senescence and cellular ploidy by mediating phosphorylation of 'Ser-464' of LATS1, thereby controlling its stability. Controls cell adhesion by regulating activity of the myosin protein phosphatase 1 (PP1) complex. Acts by mediating phosphorylation of PPP1R12A subunit of myosin PP1: phosphorylated PPP1R12A then interacts with 14-3-3, leading to reduced dephosphorylation of myosin MLC2 by myosin PP1. May be involved in DNA damage response: phosphorylates p53/TP53 at 'Ser-15' and 'Ser-392' and is recruited to the CDKN1A/WAF1 promoter to participate in transcription activation by p53/TP53. May also act as a tumor malignancy-associated factor by promoting tumor invasion and metastasis under regulation and phosphorylation by AKT1. Suppresses Fas-induced apoptosis by mediating phosphorylation of CASP6, thereby suppressing the activation of the caspase and the subsequent cleavage of CFLAR. Regulates UV radiation-induced DNA damage response mediated by CDKN1A. In association with STK11, phosphorylates CDKN1A in response to UV radiation and contributes to its degradation which is necessary for optimal DNA repair (PubMed:25329316).
Cellular Location	Nucleus. Cytoplasm
Tissue Location	Expressed at high levels in heart and brain, and at lower levels in skeletal muscle, kidney, ovary, placenta, lung and liver. Highly up-regulated in colorectal cancer cell lines

Background

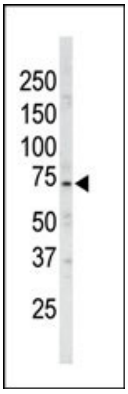
Protein kinases are enzymes that transfer a phosphate group from a phosphate donor, generally the g phosphate of ATP, onto an acceptor amino acid in a substrate protein. By this basic mechanism, protein kinases mediate most of the signal transduction in eukaryotic cells, regulating cellular metabolism, 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.

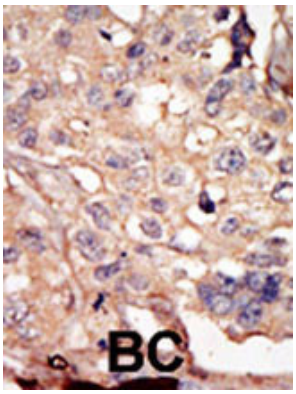
References

Suzuki, A., et al., Mol. Cell. Biol. 24(8):3526-3535 (2004).
Suzuki, A., et al., Oncogene 22(40):6177-6182 (2003).
Suzuki, A., et al., J. Biol. Chem. 278(1):48-53 (2003).

Images

The anti-ARK5 Pab (Cat. #AP8066a) is used in Western blot to detect ARK5 in mouse brain tissue lysate.





Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

Citations

- The changing AMPK expression profile in differentiating mouse skeletal muscle myoblast cells helps confer increasing resistance to apoptosis.