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PAK4 Antibody

Catalog # ASC10183

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	O96013
Other Accession	NP_005875, 5031975
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	64072
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	PAK4 antibody can be used for the detection of PAK4 by Western blot at 1 - 2 g/mL. Antibody can also be used for immunohistochemistry starting at 10 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	10298
Other Names	PAK4 Antibody: KIAA1142, p21-activated kinase 4, PAK-4, p21 protein (Cdc42/Rac)-activated kinase 4
Target/Specificity	PAK4; PAK4 antibody is predicted to not cross-react with other PAK family proteins.
Reconstitution & Storage	PAK4 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	PAK4 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PAK4 (HGNC:16059)
Synonyms	KIAA1142
Function	Serine/threonine-protein kinase that plays a role in a variety of different signaling pathways including cytoskeleton regulation, cell adhesion turnover, cell migration, growth, proliferation or cell survival (PubMed:26598620). Activation by various effectors including growth factor receptors or active CDC42 and RAC1 results in a conformational change and a subsequent autophosphorylation on several serine and/or threonine residues.

	Phosphorylates and inactivates the protein phosphatase SSH1, leading to increased inhibitory phosphorylation of the actin binding/depolymerizing factor cofilin. Decreased cofilin activity may lead to stabilization of actin filaments. Phosphorylates LIMK1, a kinase that also inhibits the activity of cofilin. Phosphorylates integrin beta5/ITGB5 and thus regulates cell motility. Phosphorylates ARHGEF2 and activates the downstream target RHOA that plays a role in the regulation of assembly of focal adhesions and actin stress fibers. Stimulates cell survival by phosphorylating the BCL2 antagonist of cell death BAD. Alternatively, inhibits apoptosis by preventing caspase-8 binding to death domain receptors in a kinase independent manner. Plays a role in cell-cycle progression by controlling levels of the cell-cycle regulatory protein CDKN1A and by phosphorylating RAN. Promotes kinase-independent stabilization of RHOU, thereby contributing to focal adhesion disassembly during cell migration (PubMed:26598620).
Cellular Location	Cytoplasm. Note=Seems to shuttle between cytoplasmic compartments depending on the activating effector. For example, can be found on the cell periphery after activation of growth-factor or integrin-mediated signaling pathways.
Tissue Location	Highest expression in prostate, testis and colon.

Background

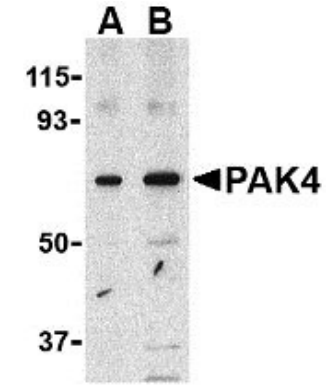
PAK4 Antibody: The p21-activated kinases (PAKs) are serine-threonine kinases that bind to the active forms of Cdc42 and Rac. They are divided into two groups, the first of which include PAK1, 2 and 3, and can be activated by Cdc42/Rac binding. Group 1 PAKs contain an autoinhibitory domain whose activity is regulated by Cdc42/Rac binding. The group 1 PAKs are known to be involved in cellular processes such as gene transcription, apoptosis, and cell morphology and motility. Much less is known about the second group, which includes PAK4, 5 and 6. These proteins are not activated by Cdc42/Rac binding. PAK4 was initially identified as a novel effector of Cdc42Hs. Co-expression of PAK4 and Cdc42Hs resulted in induction of filopodia and actin polymerization, showing that it is involved in cytoskeletal reorganization. Other experiments have shown PAK4 to be essential for embryonic viability and proper neuronal development. PAK4 has also been implicated in anchorage-independent growth of tumor cells and is required for activation of several cancer prosurvival pathways.

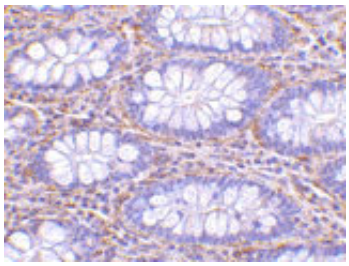
References

Jaffer ZM and Chernoff J. p21-activated kinases: three more join the Pak. Int. J. Biochem. Cell Biol. 2002; 34:713-7.
Abo A, Qu J, Cammarano MS, et al. PAK4, a novel effector for Cdc42Hs, is implicated in the reorganization of the actin cytoskeleton and in the formation of filopodia. EMBO J. 1998; 17:6527-40.
Cotteret S, Jaffer ZM, Beeser A, et al. p21-activated kinase 5 (Pak5) localizes to mitochondria and inhibits apoptosis by phosphorylated BAD. Mol. Cell. Biol. 2003; 23:5526-39.

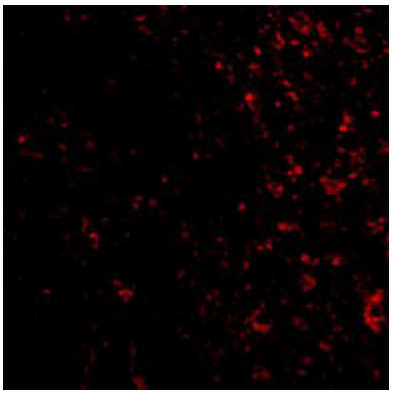
Images

Western blot analysis of PAK4 in SW480 lysate with PAK4 antibody at (A) 1 and (B) 2 µg/mL.





Immunohistochemistry of PAK4 in human colon tissue with PAK4 antibody at 10 µg/mL.



Immunofluorescence of PAK4 in Human Colon tissue with PAK4 antibody at 20 µg/mL.

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