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PAK3 Antibody (Center K218)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7928a

Product Information

Application	WB, IHC-P, E
Primary Accession	O75914
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB1223-1224
Calculated MW	62310
Antigen Region	218-247

Additional Information

Gene ID	5063
Other Names	Serine/threonine-protein kinase PAK 3, Beta-PAK, Oligophrenin-3, p21-activated kinase 3, PAK-3, PAK3, OPHN3
Target/Specificity	This PAK3 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 218-247 amino acids from the Central region of human PAK3.
Dilution	WB~~1:2000 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	PAK3 Antibody (Center K218) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PAK3
Synonyms	OPHN3
Function	Serine/threonine protein kinase that plays a role in a variety of different signaling pathways including cytoskeleton regulation, cell migration, or cell

	cycle regulation. Plays a role in dendrite spine morphogenesis as well as synapse formation and plasticity. Acts as a downstream effector of the small GTPases CDC42 and RAC1. Activation by the binding of active CDC42 and RAC1 results in a conformational change and a subsequent autophosphorylation on several serine and/or threonine residues. Phosphorylates MAPK4 and MAPK6 and activates the downstream target MAPKAPK5, a regulator of F-actin polymerization and cell migration. Additionally, phosphorylates TNNI3/troponin I to modulate calcium sensitivity and relaxation kinetics of thin myofilaments. May also be involved in early neuronal development. In hippocampal neurons, necessary for the formation of dendritic spines and excitatory synapses; this function is dependent on kinase activity and may be exerted by the regulation of actomyosin contractility through the phosphorylation of myosin II regulatory light chain (MLC) (By similarity).
Cellular Location	Cytoplasm.
Tissue Location	Restricted to the nervous system. Highly expressed in postmitotic neurons of the developing and postnatal cerebral cortex and hippocampus.

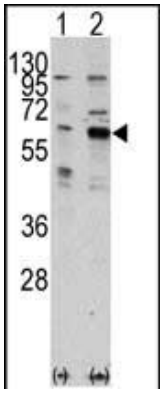
Background

PAK3, a member of the STE20 subfamily of Ser/Thr protein kinases, acts on a variety of targets. PAK3 interacts tightly with GTP-bound but not GDP-bound CDC42/p21 and RAC1. It shows highly specific binding to the SH3 domains of phospholipase C-gamma and of adapter protein NCK. This protein is highly expressed in postmitotic neurons of the developing and postnatal cerebral cortex and hippocampus. PAK3 is autophosphorylated when activated by CDC42/p21. Defects in PAK3 are the cause of non-specific X-linked nonsyndromic mental retardation type 30 (MRX30). The protein structure contains 1 CRIB domain.

References

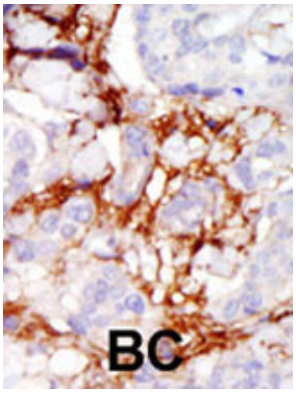
Kitano, T., et al., Mol. Biol. Evol. 20(8):1281-1289 (2003).
Allen, K.M., et al., Nat. Genet. 20(1):25-30 (1998).

Images



Western blot analysis of PAK3(arrow) using rabbit polyclonal PAK3 Antibody (Cat.#AP7928a). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the PAK3 gene (Lane 2) (Origene Technologies).

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.



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