

**Anti-PAK1/2/3 Antibody**  
**Catalog # AP53896****Specification****Anti-PAK1/2/3 Antibody - Product Information**

Application	WB, IF, IHC
Primary Accession	<a href="#">Q13153</a>
Other Accession	<a href="#">Q13177</a> , <a href="#">Q75914</a>
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	60647

**Anti-PAK1/2/3 Antibody - Additional Information****Gene ID** 5058**Other Names**

PAK1; Serine/threonine-protein kinase PAK 1; Alpha-PAK; p21-activated kinase 1; PAK-1; p65-PAK; PAK2; Serine/threonine-protein kinase PAK 2; Gamma-PAK; PAK65; S6/H4 kinase; p21-activated kinase 2; PAK-2; p58; PAK3; OPHN3; Serine/threonine-protein kinase PAK 3; Beta-PAK; Oligophrenin-3; p21-activated kinase 3; PAK-3

**Target/Specificity**

KLH-conjugated synthetic peptide encompassing a sequence within the C-term region of human PAK1/2/3. The exact sequence is proprietary.

**Dilution**

WB~~1/500 - 1/1000

IF~~1/50 - 1/200

IHC~~1:100~500

**Format**

Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.09% (W/V) sodium azide.

**Storage**

Store at -20 °C. Stable for 12 months from date of receipt

**Anti-PAK1/2/3 Antibody - Protein Information****Name** PAK1 {ECO:0000303|PubMed:8805275, ECO:0000312|HGNC:HGNC:8590}**Function**

Protein kinase involved in intracellular signaling pathways downstream of integrins and receptor-type kinases that plays an important role in cytoskeleton dynamics, in cell adhesion, migration, proliferation, apoptosis, mitosis, and in vesicle-mediated transport processes (PubMed:<a href="http://www.uniprot.org/citations/10551809" target="\_blank">10551809</a>),

PubMed:<a href="http://www.uniprot.org/citations/11896197" target="\_blank">11896197</a>,  
PubMed:<a href="http://www.uniprot.org/citations/12876277" target="\_blank">12876277</a>,  
PubMed:<a href="http://www.uniprot.org/citations/14585966" target="\_blank">14585966</a>,  
PubMed:<a href="http://www.uniprot.org/citations/15611088" target="\_blank">15611088</a>,  
PubMed:<a href="http://www.uniprot.org/citations/17726028" target="\_blank">17726028</a>,  
PubMed:<a href="http://www.uniprot.org/citations/17989089" target="\_blank">17989089</a>,  
PubMed:<a href="http://www.uniprot.org/citations/30290153" target="\_blank">30290153</a>,  
PubMed:<a href="http://www.uniprot.org/citations/17420447" target="\_blank">17420447</a>).  
Can directly phosphorylate BAD and protects cells against apoptosis (By similarity). Activated by  
interaction with CDC42 and RAC1 (PubMed:<a href="http://www.uniprot.org/citations/8805275" target="\_blank">8805275</a>,  
PubMed:<a href="http://www.uniprot.org/citations/9528787" target="\_blank">9528787</a>). Functions as a GTPase effector that links the Rho-related  
GTPases CDC42 and RAC1 to the JNK MAP kinase pathway (PubMed:<a href="http://www.uniprot.org/citations/8805275" target="\_blank">8805275</a>,  
PubMed:<a href="http://www.uniprot.org/citations/9528787" target="\_blank">9528787</a>). Phosphorylates  
and activates MAP2K1, and thereby mediates activation of downstream MAP kinases (By  
similarity). Involved in the reorganization of the actin cytoskeleton, actin stress fibers and of focal  
adhesion complexes (PubMed:<a href="http://www.uniprot.org/citations/9032240" target="\_blank">9032240</a>,  
PubMed:<a href="http://www.uniprot.org/citations/9395435" target="\_blank">9395435</a>). Phosphorylates the tubulin chaperone TBCB and thereby plays a  
role in the regulation of microtubule biogenesis and organization of the tubulin cytoskeleton  
(PubMed:<a href="http://www.uniprot.org/citations/15831477" target="\_blank">15831477</a>).  
Plays a role in the regulation of insulin secretion in response to elevated glucose levels  
(PubMed:<a href="http://www.uniprot.org/citations/22669945" target="\_blank">22669945</a>).  
Part of a ternary complex that contains PAK1, DVL1 and MUSK that is important for  
MUSK-dependent regulation of AChR clustering during the formation of the neuromuscular junction  
(NMJ) (By similarity). Activity is inhibited in cells undergoing apoptosis, potentially due to binding  
of CDC2L1 and CDC2L2 (PubMed:<a href="http://www.uniprot.org/citations/12624090" target="\_blank">12624090</a>).  
Phosphorylates MYL9/MLC2 (By similarity). Phosphorylates  
RAF1 at 'Ser- 338' and 'Ser-339' resulting in: activation of RAF1, stimulation of RAF1 translocation  
to mitochondria, phosphorylation of BAD by RAF1, and RAF1 binding to BCL2 (PubMed:<a href="http://www.uniprot.org/citations/11733498" target="\_blank">11733498</a>).  
Phosphorylates SNAI1 at 'Ser- 246' promoting its transcriptional repressor activity by increasing its  
accumulation in the nucleus (PubMed:<a href="http://www.uniprot.org/citations/15833848" target="\_blank">15833848</a>).  
In podocytes, promotes NR3C2 nuclear localization (By  
similarity). Required for atypical chemokine receptor ACKR2-induced phosphorylation of LIMK1 and  
cofilin (CFL1) and for the up-regulation of ACKR2 from endosomal compartment to cell membrane,  
increasing its efficiency in chemokine uptake and degradation (PubMed:<a href="http://www.uniprot.org/citations/23633677" target="\_blank">23633677</a>).  
In synapses,  
seems to mediate the regulation of F-actin cluster formation performed by SHANK3, maybe  
through CFL1 phosphorylation and inactivation (By similarity). Plays a role in RUFY3-mediated  
facilitating gastric cancer cells migration and invasion (PubMed:<a href="http://www.uniprot.org/citations/25766321" target="\_blank">25766321</a>).  
In response  
to DNA damage, phosphorylates MORC2 which activates its ATPase activity and facilitates  
chromatin remodeling (PubMed:<a href="http://www.uniprot.org/citations/23260667" target="\_blank">23260667</a>).  
In neurons, plays a crucial role in regulating GABA(A) receptor  
synaptic stability and hence GABAergic inhibitory synaptic transmission through its role in F-actin  
stabilization (By similarity). 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). Along with GIT1, positively regulates microtubule nucleation  
during interphase (PubMed:<a href="http://www.uniprot.org/citations/27012601" target="\_blank">27012601</a>).  
Phosphorylates FXR1, promoting its localization to stress  
granules and activity (PubMed:<a href="http://www.uniprot.org/citations/20417602" target="\_blank">20417602</a>).  
Phosphorylates ILK on 'Thr-173' and 'Ser-246', promoting  
nuclear export of ILK (PubMed:<a href="http://www.uniprot.org/citations/17420447" target="\_blank">17420447</a>).

**Cellular Location**

Cytoplasm. Cell junction, focal adhesion. Cell projection, lamellipodium. Cell membrane. Cell projection, ruffle membrane. Cell projection, invadopodium. Nucleus, nucleoplasm. Chromosome. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome Note=Colocalizes with RUFY3, F-actin and other core migration components in invadopodia at the cell periphery (PubMed:25766321) Recruited to the cell membrane by interaction with CDC42 and RAC1 Recruited to focal adhesions upon activation. Colocalized with CIB1 within membrane ruffles during cell spreading upon readhesion to fibronectin. Upon DNA damage, translocates to the nucleoplasm when phosphorylated at Thr-212 where is co-recruited with MORC2 on damaged chromatin (PubMed:23260667). Localization to the centrosome does not depend upon the presence of gamma-tubulin (PubMed:27012601) Localization of the active, but not inactive, protein to the adhesions and edge of lamellipodia is mediated by interaction with GIT1 (PubMed:11896197). {ECO:0000250|UniProtKB:P35465, ECO:0000269|PubMed:11896197, ECO:0000269|PubMed:23260667, ECO:0000269|PubMed:25766321, ECO:0000269|PubMed:27012601}

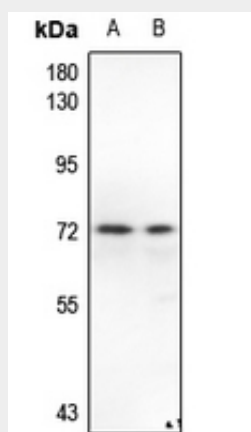
**Tissue Location**

Overexpressed in gastric cancer cells and tissues (at protein level) (PubMed:25766321).

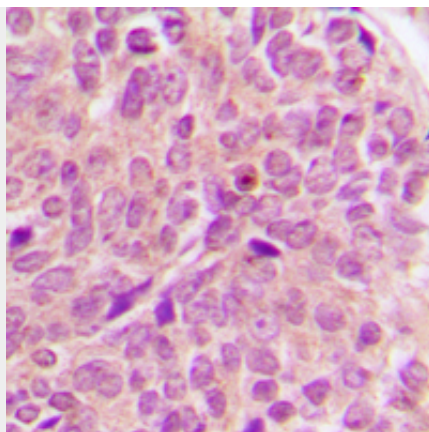
**Anti-PAK1/2/3 Antibody - Protocols**

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

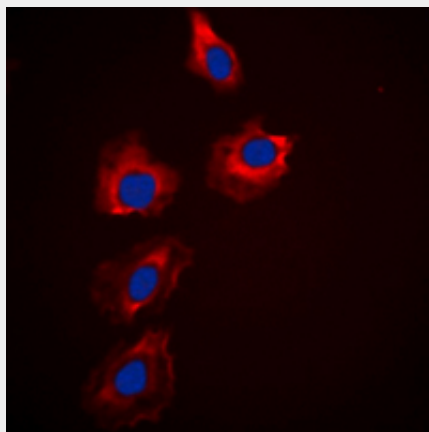
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

**Anti-PAK1/2/3 Antibody - Images**

Western blot analysis of PAK1/2/3 expression in A375 (A), A549 (B) whole cell lysates.



Immunohistochemical analysis of PAK1/2/3 staining in human breast cancer formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Immunofluorescent analysis of PAK1/2/3 staining in HeLa cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 °C in a humidified chamber. Cells were washed with PBST and incubated with a DyLight 594-conjugated secondary antibody (red) in PBS at room temperature in the dark. DAPI was used to stain the cell nuclei (blue).

#### **Anti-PAK1/2/3 Antibody - Background**

Rabbit polyclonal antibody to PAK1/2/3