

PAK1 Antibody

✓ 100 µl
(10 western blots)

rev. 1/20/10

Orders ■ 877-616-CELL (2355)
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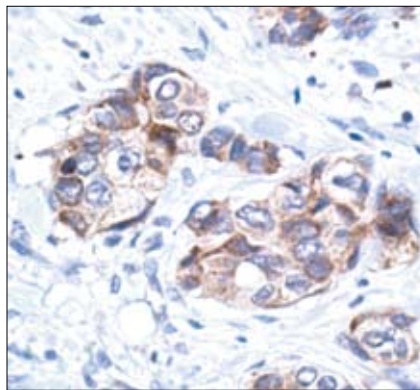
This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IP, IHC-P Endogenous	H, M, R, Mk, GP	68 kDa	Rabbit**

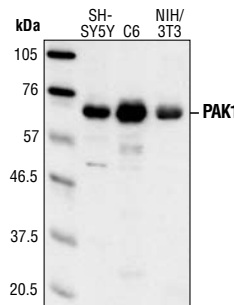
Background: The p21-activated kinase (PAK) family of serine/threonine kinases is engaged in multiple cellular processes, including cytoskeletal reorganization, MAPK signaling, apoptotic signaling, control of phagocyte NADPH oxidase and growth factor-induced neurite outgrowth (1,2). Several mechanisms that induce PAK activity have been reported. Binding of Rac/cdc42 to the CRIB (or PBD) domain near the amino terminus of PAK causes autophosphorylation and conformational changes in PAK (1). Phosphorylation of PAK1 at Thr423 by PDK induces activation of PAK1 (3). Several autophosphorylation sites have been identified, including serines 199 and 204 of PAK1 and serines 192 and 197 of PAK2 (4,5). Because the autophosphorylation sites are located in the amino-terminal inhibitory domain, it has been hypothesized that modification in this region prevents the kinase from reverting to an inactive conformation (6). Research indicates that phosphorylation of Ser144 of PAK1 or Ser139 of PAK3 (located in the kinase inhibitory domain) affects kinase activity (7). Phosphorylation of Ser21 of PAK1 or Ser20 of PAK2 regulates binding with the adaptor protein Nck (8). More recently identified family members including PAK4, PAK5 and PAK6 have lower sequence similarity with PAK1-3 in the amino-terminal regulatory region (9). Phosphorylation of Ser474 of PAK4, a site analogous to Thr423 of PAK1, may play a pivotal role in regulating the activity and function of PAK4 (10).

Specificity/Sensitivity: PAK1 Antibody detects endogenous levels of total PAK1 protein. It does not cross-react with PAK2, PAK3 or other PAK family members.

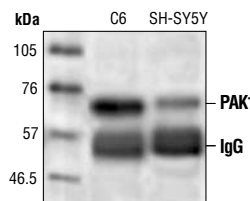
Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic peptide (KLH-coupled) corresponding to the amino-terminus of human PAK1. Antibodies are purified by protein A and peptide affinity chromatography.



Immunohistochemical analysis of paraffin-embedded human breast carcinoma, showing cytoplasmic localization using PAK1 Antibody.



Western blot analysis of extracts from SH-SY5Y, C6 and NIH/3T3 cells using PAK1 Antibody.



Immunoprecipitation of PAK1 from C6 and SH-SY5Y cells followed by Western blot analysis using PAK1 Antibody.

Entrez-Gene ID #5058
Swiss-Prot Acc. #Q13153

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

*Species cross-reactivity is determined by Western blot.

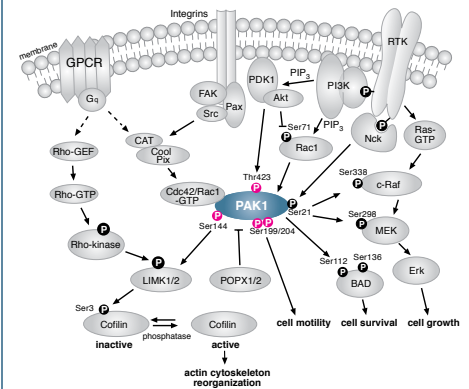
**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western Blotting	1:1000
Immunoprecipitation	1:50
Immunohistochemistry (Paraffin)	1:50

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.



**Selected Application References:**

Rudrabhatla, R.S. et al. (2003) Modulation of Myosin Light-Chain Phosphorylation by p21-Activated Kinase 1 in Escherichia coli Invasion of Human Brain Microvascular Endothelial Cells. *Infection and Immunity* 71 (5), 2787–2797. Application: W.

Chu, P.C. et al. (2004) A Novel Role for p21-Activated Protein Kinase 2 in T Cell Activation. *The Journal of Immunology* 172, 7324–7334. Application: W.

Weber, D.S. et al. (2004) Phosphoinositide-Dependent Kinase 1 and p21-Activated Protein Kinase Mediate Reactive Oxygen Species-Dependent Regulation of Platelet-Derived Growth Factor-Induced Smooth Muscle Cell Migration. *Circulation Research* 94, 1219–1226. Application: W.

Harfouche, R. et al. (2005) Roles of reactive oxygen species in angiotensin-1/tie-2 receptor signaling. *FASEB J* 19, 1728–30. Application: W.

Misra, U.K. et al. (2005) Ligation of cell surface-associated glucose-regulated protein 78 by receptor-recognized forms of alpha 2-macroglobulin: activation of p21-activated protein kinase-2-dependent signaling in murine peritoneal macrophages. *J Immunol* 175, 2525–33. Application: W.

Background References:

- (1) Knaus, U.G. and Bokoch, G.M. (1998) *Int. J. Biochem. Cell Biol.* 30, 857–862.
- (2) Daniels, R.H. et al. (1998) *EMBO J.* 17, 754–764.
- (3) King, C.C. et al. (2000) *J. Biol. Chem.* 275, 41201–41209.
- (4) Manser, E. et al. (1997) *Mol. Cell. Biol.* 17, 1129–1143.
- (5) Gatti, A. et al. (1999) *J. Biol. Chem.* 274, 8022–8028.
- (6) Lei, M. et al. (2000) *Cell* 102, 387–397.
- (7) Chong, C. et al. (2001) *J. Biol. Chem.* 276, 17347–17353.
- (8) Zhao, Z. et al. (2000) *Mol. Cell. Biol.* 20, 3906–3917.
- (9) Abo, A. et al. (1998) *EMBO J.* 17, 6527–6540.
- (10) Qu, J. et al. (2001) *Mol. Cell. Biol.* 21, 3523–3533.