



PhosphoSolutions®
Antibodies that work™

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Anti-Phospho-Thr⁴⁰² PAK-1,2,3

Catalog Number: p187-402

Size: 100 µl

\$310.00

Product Description: Affinity purified rabbit polyclonal antibody

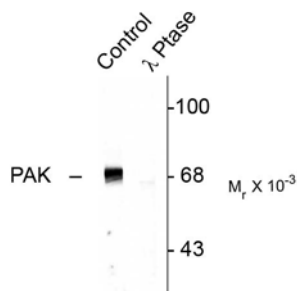
Applications: WB: 1:1000

Antigen: Phosphopeptide corresponding to amino acid residues surrounding the phospho-Thr⁴⁰² of rat p21 activated kinase 2 (PAK-2). The peptide sequence used is identical in PAK-1, 2 and 3. Note: Thr⁴⁰² in PAK-2 corresponds to Thr⁴²³ in human PAK-1.

Species reactivity: The antibody has been directly tested for reactivity in Western blots with rat tissue. It is anticipated that the antibody will react with bovine, canine, human and mouse based on the fact that these species have 100% homology with the amino acid sequence used as antigen.

Biological Significance: In mammals, there are several identified isoforms of p21-activated protein kinases or PAKs: α-PAK (also known as PAK-1) and β-PAK (also known as PAK-3) are mostly brain-specific, while γ-PAK (also known as PAK-2) is expressed ubiquitously (Jakobi et al., 2003). Mutations of the gene coding for PAK-3 are associated with X-linked mental retardation and recent work indicates that PAK-3 is a key regulator of synapse formation and plasticity in the hippocampus (Boda et al., 2004). PAK-3 is thought to play a key role in regulation of cell shape and motility as well as cell death (Jakobi et al., 2003; Walter et al., 1998). Autophosphorylation of Thr⁴⁰² in the protein has been found to be essential for activation of PAK (Jakobi et al., 2000).

Anti-Phospho-Thr⁴⁰² PAK-1,2,3



Western blot of rat hippocampal lysate showing specific immunolabeling of the ~68k to ~70k PAK protein (Control). The phosphospecificity of this labeling is shown in the second lane (*lambda*-phosphatase: λ-Ptase). The blot is identical to the control except that it was incubated in λ-Ptase (1200 units for 30 min) before being exposed to the phospho-Thr⁴⁰² PAK-1,2,3 antibody. The immunolabeling of PAK is completely eliminated by treatment with λ-Ptase.

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WB = Western Blot **IF** = Immunofluorescence **IHC** = Immunohistochemistry **IP** = Immunoprecipitation

Packaging: 100 µl in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 µg per ml BSA and 50% glycerol. Adequate amount of material to conduct 10-mini Western Blots.

Storage and Stability: Store at -20°C; stable for at least one year.

Shipment: Domestic - Blue Ice; International - Blue Ice or Dry Ice.

Purification Method: Prepared from rabbit serum by affinity purification via sequential chromatography on phospho- and dephosphopeptide affinity columns.

Antibody Specificity: Specific for the ~68k to ~70k PAK protein phosphorylated at Thr⁴⁰². The immunolabeling of PAK is completely eliminated by λ -phosphatase treatment.

Quality Control Tests: Western blots performed on each lot.

References:

- Boda B, Alberi S, Nikonenko I, Node-Langlois R, Jourdain P, Moosmayer M, Parisi-Jourdain L, Muller D (2004) The mental retardation protein PAK-3 contributes to synapse formation and plasticity in hippocampus. *J Neurosci* 24:10816-10825.
- Jakobi R, Huang Z, Walter BN, Tuazon PT, Traugh JA (2000) Substrates enhance autophosphorylation and activation of p21-activated protein kinase *gamma*-PAK in the absence of activation loop phosphorylation. *Eur J Biochem* 267:4414-4421.
- Jakobi R, McCarthy CC, Koeppel MA, Stringer DK (2003) Caspase-activated PAK-2 is regulated by subcellular targeting and proteasomal degradation. *J Biol Chem* 278:38675-38685.
- Walter BN, Huang Z, Jakobi R, Tuazon PT, Alnemri ES, Litwack G, Traugh JA (1998) Cleavage and activation of p21-activated protein kinase *gamma*-PAK by CPP32 (caspase 3). Effects of autophosphorylation on activity. *J Biol Chem* 273:28733-28739.

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