Revision 1

Store at -20C
#2607

Phospho-PAK2 (Ser20) Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB	H M GP	Endogenous	61 to 67	Rabbit	#Q13177	5062

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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.

Specificity / Sensitivity

Phospho-PAK2 (Ser20) Antibody detects endogenous levels of PAK2 only when phosphorylated at serine 20. This antibody does not cross-react with other phosphorylated PAK family members.

Species predicted to react based on 100% sequence homology:

Rat

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser20 of human PAK2. Antibodies are purified by protein A and peptide affinity chromatography.

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 Ser199 and Ser204 of PAK1, and Ser192 and Ser197 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 at Ser144 of PAK1 or Ser139 of PAK3 (located in the kinase inhibitory domain) affects kinase activity (7). Phosphorylation at Ser21 of PAK1 or Ser20 of PAK2 regulates binding with the adaptor protein Nck (8). PAK4, PAK5/7, and PAK6 have lower sequence similarity with PAK1-3 in the amino-terminal regulatory region (9). Phosphorylation at Ser474 of PAK4, a site analogous to Thr423 of PAK1, may play a pivotal role in regulating the activity and function of PAK4 (10). PAK family members are widely expressed, and often overexpressed in human cancer (11,12).

Background References

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4. Manser, E. et al. (1997) *Mol. Cell. Biol.* 17, 1129-43.
5. Gatti, A. et al. (1999) *J. Biol. Chem.* 274, 8022-8.
6. Lei, M. et al. (2000) *Cell* 102, 387-97.
7. Chong, C. et al. (2001) *J. Biol. Chem.* 276, 17347-53.
8. Zhao, Z. et al. (2000) *Mol. Cell. Biol.* 20, 3906-17.
9. Abo, A. et al. (1998) *EMBO J.* 17, 6527-40.
10. Qu, J. et al. (2001) *Mol. Cell. Biol.* 21, 3523-33.
11. Wen, Y.Y. et al. (2014) *Expert Opin Ther Targets* 18, 807-15.
12. Molli, P.R. et al. (2009) *Oncogene* 28, 2545-55.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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Limited Uses