

### Background

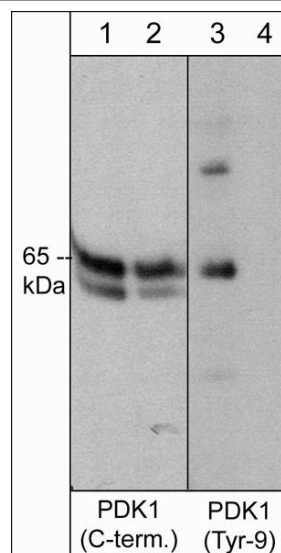
3-Phosphoinositide-dependent kinase 1 (PDK1), also known as PKB kinase, was identified as the activator of the survival kinase Akt/PKB. Several important substrates of PDK1 include p70S6 kinase, PKAs, PKCs, SGKs, RSKs, and PAKs. PDK1 is a member of the AGC superfamily of serine/threonine kinases. Through the phosphorylation of downstream kinases, like Akt, PDK1 has been shown to be involved in several different cell functions, such as protein synthesis, cell survival, glucose metabolism, and cell adhesion and migration. The regulation of PDK1 occurs through lipid second messengers and phosphorylation. Multiple serine sites are phosphorylated on PDK1. Serine 241 phosphorylation is required for PDK1 activity, while serine 396 has been implicated in PDK1 nuclear translocation. Tyrosine phosphorylation may also regulate PDK1 activity. Tyrosines 9 and 373/376 are phosphorylated by c-Src in vitro. Tyr-373/Tyr-376 are important for PDK1 activity, while Tyr-9 phosphorylation permits Tyr-373/Tyr-376 phosphorylation by c-Src. In addition, Tyr-9 may be important during angiotensin-II-induced focal adhesion formation.

### Background References

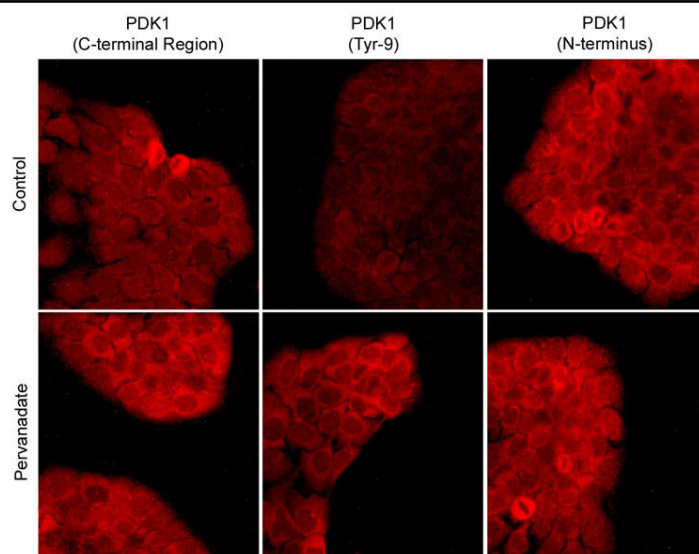
Park, J. et al. (2001) J Biol. Chem. 276(40):37459.  
Taniyama, Y. et al. (2003) Mol Cell. Biol. 23(22):8019.  
Scheid, M.P. et al. (2005) Mol. Cell. Biol. 25(6):2347.

### Product Citations

Dodson, L.F. et al. (2009) Mol Cell Biol. 29:3710.  
*WB: mouse T-Cells*  
Block, K. et al. (2008) J. Biol. Chem. 35:24061.  
*WB: rat mesangial cells*



Western blot image of A431 cells stimulated with pervanadate (lanes 1 and 3). The blots were then treated with alkaline phosphatase (lanes 2 & 4) then probed with anti-PDK1 (C-terminal region) mouse monoclonal antibody or anti-PDK1 (Tyr-9) (PP1431) rabbit polyclonal antibody.



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### Immunogen

**Uniprot ID:** O15530

Phospho-PDK1 (Tyr-9) synthetic peptide (coupled to carrier protein) corresponds to amino acids surrounding tyrosine 9 in human PDK1. This sequence is highly conserved in rat and mouse PDK1.

### Buffer and Storage

Rabbit polyclonal, affinity-purified antibody is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at -20°C. Stable for 1 year.

### Applications

WB	1:1000
ELISA	1:2000
ICC	1:200

### Species Reactivity

Hu, Rt, Ms

End user should determine optimal dilution for their particular applications and experiments.

Western blot membranes were incubated with diluted antibody in 5% non-fat milk, Tris buffer, 0.04% Tween20 for 1 hour at room temperature.

Abbreviations: E = ELISA, ICC = immunocytochemistry, IHC = immunohistochemistry, IP = immunoprecipitation, MS = mass spectrometry, WB = western blot  
Hu = Human, Ms = Mouse, Rt = Rat, Ck = Chicken, F = Frog, B = Bovine

### Specificity

This antibody was cross-adsorbed to phospho-tyrosine coupled to agarose, then affinity purified using phospho-PDK1 (Tyr-9) peptide. The purified antibody detects a 65 kDa\* protein corresponding to the apparent molecular mass of PDK1 on SDS-PAGE immunoblots of human A431 cells treated with EGF, IGF-1, or pervanadate, but not in untreated cells. PDK1 (Tyr-9) reactivity was also observed in adult mouse brain.

\*All molecular weights (MW) are confirmed by comparison to MW standards and to western blot mobilities of known proteins with similar MW.

"Native" western blot utilizes non-reducing sample buffer (no mercaptoethanol or SDS), normal SDS-PAGE gel electrophoresis, and no methanol in transfer buffers.

### Related Products

PX1435 phospho-PDK1 (Tyr-9) Blocking Peptide

PM1461 PDK1 (C-terminal region) Mouse Monoclonal

PK6400 PDK1 Phospho-Regulation Antibody Sampler Kit

PP3891 PDK1 (Ser-241), phospho-specific Rabbit Polyclonal

PP1551 PAK6 (Ser-165), phospho-specific Rabbit Polyclonal

AK6340 Akt Phospho-Regulation Antibody Sampler Kit

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