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#4058

Phospho-Akt (Ser473) (193H12) Rabbit mAb



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

Applications: WB, IP, IF-IC, FC-FP	Reactivity: H M R	Sensitivity: Endogenous	MW (kDa): 60	Source/Isotype: Rabbit IgG	UniProt ID: #P31751, #Q9Y243, #P31749	Entrez-Gene Id: 208, 10000, 207
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Product Usage Information	Application Western Blotting Immunoprecipitation Immunofluorescence (Immunocytochemistry) Flow Cytometry (Fixed/Permeabilized)	Dilution 1:1000 1:200 1:100 - 1:200 1:200 - 1:800
Storage	Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody. For a carrier free (BSA and azide free) version of this product see product #92982.	
Specificity / Sensitivity	Phospho-Akt (Ser473) (193H12) Rabbit mAb detects endogenous levels of Akt1 only when phosphorylated at Ser473. This antibody also recognizes Akt2 and Akt3 when phosphorylated at the corresponding residues.	
Source / Purification	Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues around Ser473 of mouse Akt.	
Background	Akt, also referred to as PKB or Rac, plays a critical role in controlling cell survival and apoptosis (1-3). This protein kinase is activated by insulin and various growth and survival factors to function in a wortmannin-sensitive pathway involving PI3 kinase (2,3). Akt is activated by phospholipid binding and activation loop phosphorylation at Thr308 by PDK1 (4) and by phosphorylation within the carboxy terminus at Ser473. The previously elusive PDK2 responsible for phosphorylation of Akt at Ser473 has been identified as mammalian target of rapamycin (mTOR) in a rapamycin-insensitive complex with rictor and Sin1 (5,6). Akt promotes cell survival by inhibiting apoptosis through phosphorylation and inactivation of several targets, including Bad (7), forkhead transcription factors (8), c-Raf (9), and caspase-9. PTEN phosphatase is a major negative regulator of the PI3K/Akt signaling pathway (10). LY294002 is a specific PI3 kinase inhibitor (11). Another essential Akt function is the regulation of glycogen synthesis through phosphorylation and inactivation of GSK-3α and β (12,13). Akt may also play a role in insulin stimulation of glucose transport (12). In addition to its role in survival and glycogen synthesis, Akt is involved in cell cycle regulation by preventing GSK-3β-mediated phosphorylation and degradation of cyclin D1 (14) and by negatively regulating the cyclin-dependent kinase inhibitors p27 Kip1 (15) and p21 Waf1/Cip1 (16). Akt also plays a critical role in cell growth by directly phosphorylating mTOR in a rapamycin-sensitive complex containing raptor (17). More importantly, Akt phosphorylates and inactivates tuberlin (TSC2), an inhibitor of mTOR within the mTOR-raptor complex (18,19).	
Background References	1. Franke, T.F. et al. (1997) <i>Cell</i> 88, 435-7. 2. Burgering, B.M. and Coffey, P.J. (1995) <i>Nature</i> 376, 599-602. 3. Franke, T.F. et al. (1995) <i>Cell</i> 81, 727-36. 4. Alessi, D.R. et al. (1996) <i>EMBO J</i> 15, 6541-51. 5. Sarbassov, D.D. et al. (2005) <i>Science</i> 307, 1098-101. 6. Jacinto, E. et al. (2006) <i>Cell</i> 127, 125-37. 7. Cardone, M.H. et al. (1998) <i>Science</i> 282, 1318-21. 8. Brunet, A. et al. (1999) <i>Cell</i> 96, 857-68. 9. Zimmermann, S. and Moelling, K. (1999) <i>Science</i> 286, 1741-4. 10. Cantley, L.C. and Neel, B.G. (1999) <i>Proc Natl Acad Sci USA</i> 96, 4240-5. 11. Vlahos, C.J. et al. (1994) <i>J Biol Chem</i> 269, 5241-8. 12. Hajdich, E. et al. (2001) <i>FEBS Lett</i> 492, 199-203. 13. Cross, D.A. et al. (1995) <i>Nature</i> 378, 785-9. 14. Diehl, J.A. et al. (1998) <i>Genes Dev</i> 12, 3499-511. 15. Gesbert, F. et al. (2000) <i>J Biol Chem</i> 275, 39223-30.	

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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 IP: Immunoprecipitation IF-IC: Immunofluorescence (Immunocytochemistry) FC-FP: Flow Cytometry (Fixed/Permeabilized)
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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