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Phospho-Akt (Ser473) (D9E) XP® Rabbit mAb (PE-Cy7® Conjugate)


Cell Signaling
TECHNOLOGY®

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Applications: FC-FP	Reactivity: H M R Hm Mk Dm Z B	Sensitivity: Endogenous	Source/Isotype: Rabbit IgG	UniProt ID: #P31751, #Q9Y243, #P31749	Entrez-Gene Id: 208, 10000, 207
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Product Usage Information	Application Flow Cytometry (Fixed/Permeabilized)	Dilution 1:50
Storage	Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.	
Specificity / Sensitivity	Phospho-Akt (Ser473) (D9E) XP® Rabbit mAb (PE-Cy7® Conjugate) detects endogenous levels of Akt only when phosphorylated at Ser473.	
Species predicted to react based on 100% sequence homology:	Chicken, Xenopus, Dog, Pig	
Source / Purification	Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues around Ser473 of human Akt protein.	
Product Description	This Cell Signaling Technology antibody is conjugated to phycoerythrin in combination with cyanine 7 (PE-Cy7®) and tested in-house for direct flow cytometric analysis in human cells. This antibody is expected to exhibit the same species cross-reactivity as the unconjugated Phospho-Akt (Ser473) (D9E) XP® Rabbit mAb #4060.	
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 Coffer, 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.	

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Species Reactivity

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

Applications Key

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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