#12178 Store at -20°C

Phospho-Akt (Thr450) (D5G4) Rabbit mAb

Cell Signaling TECHNOLOGY®

☑ 100 µl
(10 western blots)

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Entrez-Gene ID #207, 208, 10000
UniProt Acc. #P31749, P31751, Q9Y243

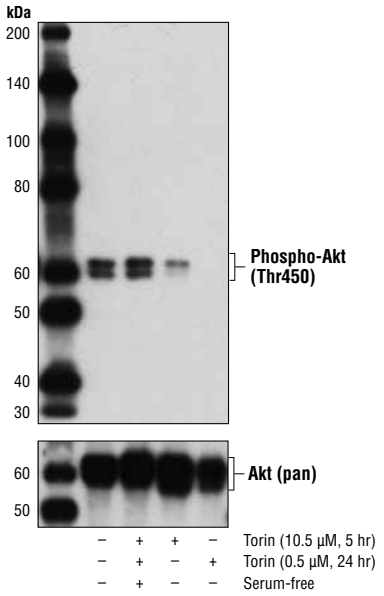
Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W, IP Endogenous	H, M, R	60 kDa	Rabbit IgG**

Background: Akt, also referred to as PKB or Rac, plays a critical role in controlling 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 PI3 kinase/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 Kip (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 tuberin (TSC2), an inhibitor of mTOR within the mTOR-raptor complex (18,19).

JNK reactivates Akt after ischemic injury by phosphorylating Thr450, a priming event for subsequent phosphorylation by 3-phosphoinositide-dependent protein kinase (20).

Specificity/Sensitivity: Phospho-Akt (Thr450) (D5G4) Rabbit mAb recognizes endogenous levels of Akt1 only when phosphorylated at Thr450. This antibody also recognizes Akt2 and Akt3 when phosphorylated at the corresponding residues. It does not recognize Akt phosphorylated at other sites.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr450 of human Akt1 protein.



Western blot analysis of extracts from LNCaP cells, untreated, serum-starved, or Torin-treated as indicated, using Phospho-Akt (Thr450) (D5G4) Rabbit mAb (upper) or Akt (pan) (C67E7) Rabbit mAb #4691 (lower).

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

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.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000
Immunoprecipitation	1:50

For product specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

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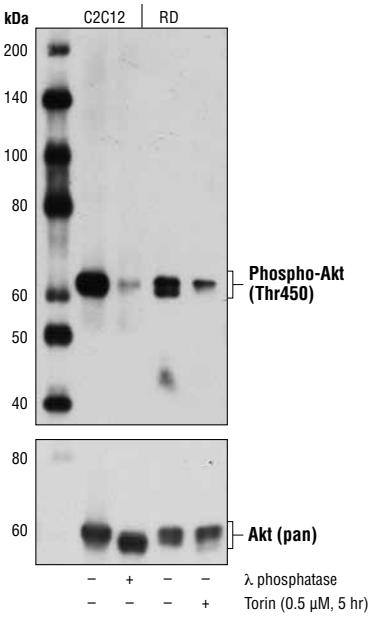
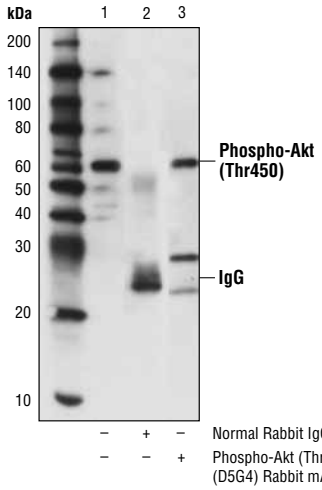
Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.



Western blot analysis of extracts from various cells lines using Phospho-Akt (Thr450) (D5G4) Rabbit mAb (upper) or Akt (pan) (C67E7) Rabbit mAb #4691 (lower).



Immunoprecipitation of Phopho-Akt (Thr450) from MEF cell extracts, using Normal Rabbit IgG #2729 (lane 2) or Phospho-Akt (Thr450) (D5G4) Rabbit mAb (lane 3). Lane 1 is 10% input. Western blot analysis was performed using Phospho-Akt (Thr450) (D5G4) Rabbit mAb.