

#2938 Store at -20°C

# Akt1 (C73H10) Rabbit mAb

✓ 100 µl (10 western blots)



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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

| Applications               | Species Cross-Reactivity* | Molecular Wt. | Isotype      |
|----------------------------|---------------------------|---------------|--------------|
| W, IP, IHC-P<br>Endogenous | H, M, R, Mk               | 60 kDa        | Rabbit IgG** |

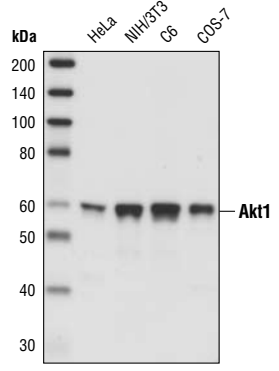
**Background:** Akt, also referred to as PKB or Rac, plays a critical role in controlling survival and apoptosis (1-3). This protein kinase is activated by insulin and various growth and survival factors to function in a wortmannin-sensitive pathway involving PI3 kinase (2,3). Akt is activated by phospholipid 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 by phosphorylating and inactivating 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).

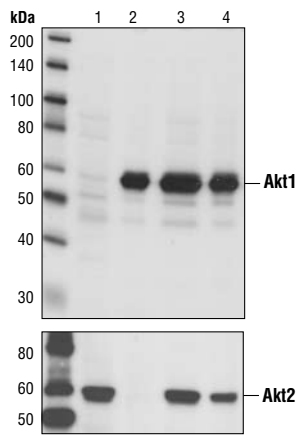
In addition to its role in survival and glycogen synthesis, Akt is involved in cell cycle regulation by preventing GSK-3β mediated phosphorylation and degradation of cyclin D1 (14) and by negatively regulating the cyclin dependent kinase inhibitors p27 Kip (15) and p21 Waf1 (16). Akt also plays a critical 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). Inhibition of mTOR stops the protein synthesis machinery due to inactivation of its effector, p70 S6 kinase and activation of the eukaryotic initiation factor 4E binding protein 1 (4E-EP1), an inhibitor of translation (18,19).

**Specificity/Sensitivity:** Akt1 (C73H10) Rabbit mAb detects endogenous levels of total Akt1 protein. This antibody does not cross-react with Akt2 or Akt3.

**Source/Purification:** Monoclonal antibody is produced by immunizing animals with a synthetic peptide surrounding Leu110 of human Akt1.



Western blot analysis of extracts from various cell types using Akt1 (C73H10) Rabbit mAb.



Western blot analysis of extracts from Akt1 (lane 1), Akt2 (lane 2) and Akt3 (lane 3) knock-out mouse embryonic fibroblasts (MEFs) and matched wild-type MEFs (lane 4) using Akt1 (C73H10) Rabbit mAb (upper) and Akt2 Antibody #2962 (lower).

Entrez-Gene ID # 207  
Swiss-Prot Acc. # P31749

**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.

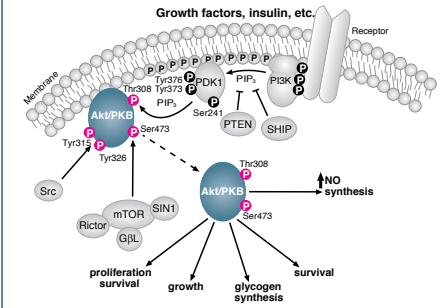
\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**

|                                 |                                     |
|---------------------------------|-------------------------------------|
| Western blotting                | 1:1000                              |
| Immunoprecipitation             | 1:50                                |
| Immunohistochemistry (Paraffin) | 1:400                               |
| Unmasking buffer:               | Citrate                             |
| Antibody diluent:               | SignalStain® Antibody Diluent #8112 |

For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

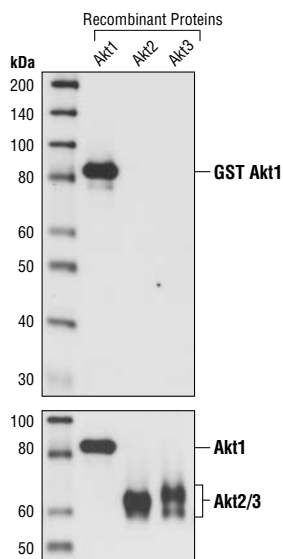
Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.



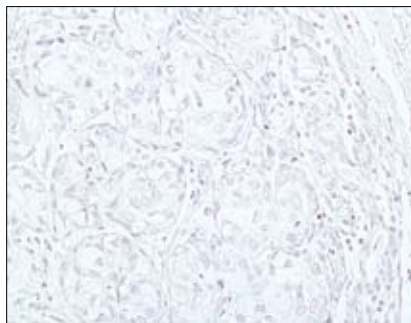
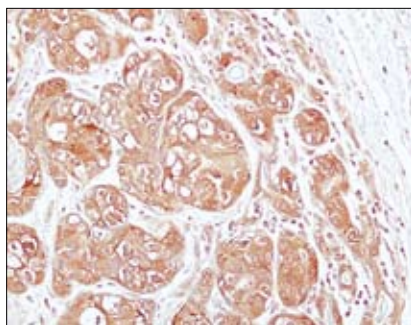
**IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.**

**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.

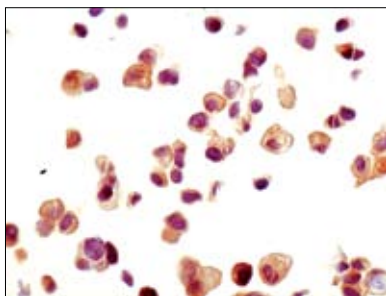
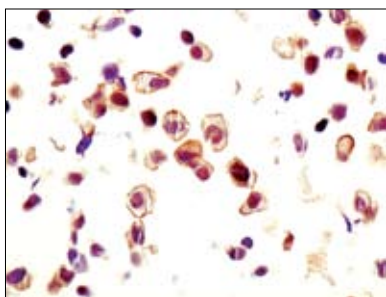
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Western blot analysis of recombinant Akt1, Akt2 and Akt3 protein, using Akt1 (C73H10) Rabbit mAb (upper) and Akt (pan) (11E7) Rabbit mAb #4685 (lower).



Immunohistochemical analysis of paraffin-embedded human breast carcinoma using Akt1 Rabbit mAb in the presence of control peptide (upper) or antigen specific peptide (lower).



Immunohistochemical analysis using Akt1 (C73H10) Rabbit mAb on SignalSlide™ Phospho-Akt (Ser473) IHC Controls #8101

#### Background References:

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