

# p-Akt1/2/3 (Thr 308)-R: sc-16646-R

## BACKGROUND

The serine/threonine kinase Akt family contains several members, including Akt1 (also designated PKB or RacPK), Akt2 (also designated PKB $\beta$  or RacPK- $\beta$ ) and Akt 3 (also designated PKB $\gamma$  or thymoma viral proto-oncogene 3), which exhibit sequence homology with the protein kinase A and C families and are encoded by the c-Akt proto-oncogene. All members of the Akt family have a Pleckstrin homology domain. Akt1 and Akt2 are activated by PDGF stimulation. This activation is dependent on PDGFR- $\beta$  tyrosine residues 740 and 751, which bind the subunit of the phosphatidylinositol 3-kinase (PI 3-kinase) complex. Activation of Akt1 by Insulin or Insulin-growth factor-1(IGF-1) results in phosphorylation of both Thr 308 and Ser 473. Akt proteins become phosphorylated and activated in Insulin/IGF-1-stimulated cells by an upstream kinase(s), and the activation of Akt1 and Akt2 is inhibited by the PI kinase inhibitor wortmannin. Taken together, this data strongly suggests that the protein signals downstream of the PI kinases. Akt3 is phosphorylated on a serine residue in response to Insulin. However, the activation of Akt3 by Insulin is inhibited by prior activation of protein kinase C via a mechanism that does not require the presence of the PH domain. Akt3 is expressed in 3T3-L1 fibroblasts, adipocytes and skeletal muscle and may be involved in various biological processes, including adipocyte and muscle differentiation, glycogen synthesis, glucose uptake, apoptosis and cellular proliferation.

## SOURCE

p-Akt1/2/3 (Thr 308)-R is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 308 of Akt2 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16646 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

p-Akt1/2/3 (Thr 308)-R is recommended for detection of Thr 308 phosphorylated Akt1 and correspondingly Thr 309 phosphorylated Akt2 and correspondingly Thr 305 phosphorylated Akt3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of p-Akt1: 60 kDa.

Molecular Weight of p-Akt2: 56 kDa.

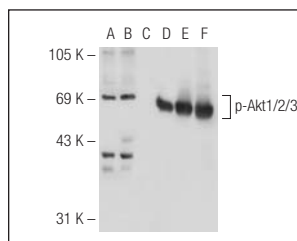
Molecular Weight of p-Akt3: 60 kDa.

Positive Controls: A-431 + EGF whole cell lysate: sc-2202, HeLa + heat shock cell lysate: sc-2272 or Jurkat whole cell lysate: sc-2204.

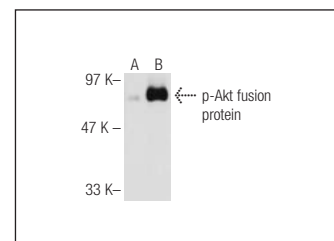
## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## DATA



Western blot analysis of Akt1/2/3 phosphorylation in untreated (A, D), insulin treated (B, E) and insulin and lambda protein phosphatase treated (C, F) 293T whole cell lysates. Antibodies tested include p-Akt1/2/3 (Thr 308)-R: sc-16646-R (A, B, C) and Akt1/2/3 (H-136): sc-8312 (D, E, F).



p-Akt1/2/3 (Thr 308)-R: sc-16646-R. Western blot analysis of inactive (A) and active (B) human recombinant Akt1 fusion protein.

## SELECT PRODUCT CITATIONS

- Yang T.T., et al. 2006. Role of transcription factor NFAT in glucose and Insulin homeostasis. *Mol. Cell. Biol.* 26: 7372-7387.
- Onori, P., et al. 2006. Activation of the IGF1 system characterizes cholangiocyte survival during progression of primary biliary cirrhosis. *J. Histochem. Cytochem.* 55: 327-334.
- Singleton, P.A., et al. 2006. Transactivation of sphingosine 1-phosphate receptors is essential for vascular barrier regulation. Novel role for hyaluronan and CD44 receptor family. *J. Biol. Chem.* 281: 34381-34393.
- Djouder, N., et al. 2007. S6K1-mediated disassembly of mitochondrial URI/PP1 $\gamma$  complexes activates a negative feedback program that counters S6K1 survival signaling. *Mol. Cell* 28: 28-40.
- Guo, W.J., et al. 2007. Mel-18 acts as a tumor suppressor by repressing Bmi-1 expression and down-regulating Akt activity in breast cancer cells. *Cancer Res.* 67: 5083-5089.
- Kuo, S.H., et al. 2008. Overexpression of B cell-activating factor of TNF family (BAFF) is associated with *Helicobacter pylori*-independent growth of gastric diffuse large B-cell lymphoma with histologic evidence of MALT lymphoma. *Blood* 112: 2927-2934.
- Lee, M.J., et al. 2008. Octylphenol stimulates resistin gene expression in 3T3-L1 adipocytes via the estrogen receptor and extracellular signal-regulated kinase pathways. *Am. J. Physiol. Cell Physiol.* 294: C1542-C1551.
- Chamberlain, M.D., et al. 2008. Disrupted Rab GAP function of the p85 subunit of phosphatidylinositol 3-kinase results in cell transformation. *J. Biol. Chem.* 283: 15861-15868.

## STORAGE

Store at 4 $^{\circ}$  C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.