

p-Akt1/2/3 (Ser 473): sc-33437

BACKGROUND

The serine/threonine kinase Akt family contains several members, including Akt1 (also designated PKB or RacPK), Akt2 (also designated PKB β or RacPK- β) and Akt 3 (also designated PKB γ 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- β 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 (Ser 473) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Ser 473 of Akt1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-33437 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-Akt1/2/3 (Ser 473) is recommended for detection of Ser 473 phosphorylated Akt1 and correspondingly Ser 474 phosphorylated Akt2 and correspondingly Ser 472 phosphorylated Akt3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

p-Akt1/2/3 (Ser 473) is also recommended for detection of correspondingly phosphorylated Ser on Akt1, Akt2 and Akt3 in additional species, including equine, canine, bovine, porcine and avian.

Molecular Weight of p-Akt1: 60 kDa.

Molecular Weight of p-Akt2: 56 kDa.

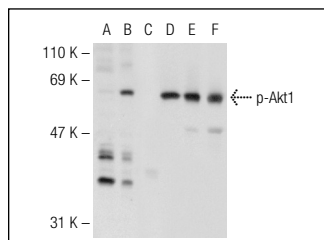
Molecular Weight of p-Akt3: 60 kDa.

Positive Controls: HeLa + heat shock cell lysate: sc-2272, Jurkat whole cell lysate: sc-2204 or Jurkat + Calyculin A cell lysate: sc-2277.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



Western blot analysis of Akt1 phosphorylation in untreated (**A,D**), serum starved and insulin treated (**B,E**) and serum starved, insulin treated and lambda protein phosphatase (sc-200312A) treated (**C,F**) HEK293 whole cell lysates. Antibodies tested include p-Akt1/2/3 (Ser 473): sc-33437 (**A,B,C**) and Akt1 (C-20): sc-1618 (**D,E,F**).

SELECT PRODUCT CITATIONS

- Chen, J.X., et al. 2004. HSP 90 and Akt modulate Ang-1-induced angiogenesis via NO in coronary artery endothelium. *J. Appl. Physiol.* 96: 612-620.
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- Albrecht, J.W., et al. 2007. Cascaded free-flow isoelectric focusing for improved focusing speed and resolution. *Anal. Chem.* 79: 9364-9371.
- Wu, R., et al. 2007. HSP 27 regulates Akt activation and polymorphonuclear leukocyte apoptosis by scaffolding MK2 to Akt signal complex. *J. Biol. Chem.* 282: 21598-21608.
- Liu, L., et al. 2008. Rapamycin inhibits F-Actin reorganization and phosphorylation of focal adhesion proteins. *Oncogene* 27: 4998-5010.
- Korkaya, H., et al. 2008. HER2 regulates the mammary stem/progenitor cell population driving tumorigenesis and invasion. *Oncogene* 27: 6120-6130.
- Chelch, I., et al. 2009. Molecular profiles of quadriceps muscle in myostatin-null mice reveal PI 3K and apoptotic pathways as myostatin targets. *BMC Genomics* 10: 196.
- Polo, M.L., et al. 2010. Responsiveness to PI3K and MEK inhibitors in breast cancer. Use of a 3D culture system to study pathways related to hormone independence in mice. *PLoS ONE* 5: e10786.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.