SANTA CRUZ BIOTECHNOLOGY, INC.

p-Akt1 (5.Ser 473): sc-293125

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The serine/threonine kinase Akt family contains several members, including Akt1 (also designated PKB or RacPK), Akt2 (also designated PKBβ or RacPK-β) and Akt 3 (also designated PKBγ or thyoma 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.

REFERENCES

1. Burgering, B.M., et al. 1995. Protein kinase B (c-Akt) in phosphatidylinositol-3-OH kinase signal transduction. Nature 376: 599-602.
2. Datta, K., et al. 1995. AH/PH domain-mediated interaction between Akt molecules and its potential role in Akt regulation. Mol. Cell. Biol. 15: 2304-2310.
3. Franke, T.F., et al. 1995. The protein kinase encoded by the Akt proto-oncogene is a target of the PDGF-activated phosphatidylinositol 3-kinase. Cell 81: 727-736.

CHROMOSOMAL LOCATION

Genetic locus: AKT1 (human) mapping to 14q32.33; Akt1 (mouse) mapping to 12 F1.

SOURCE

p-Akt1 (5.Ser 473) is a mouse monoclonal antibody raised against a short amino acid sequence containing Ser 473 phosphorylated Akt1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-Akt1 (5.Ser 473) is available conjugated to agarose (sc-293125 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; and to HRP (sc-293125 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

STORAGE

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

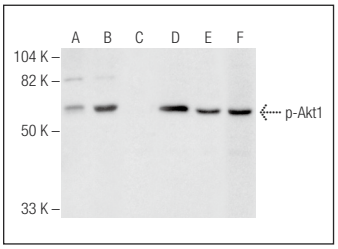
APPLICATIONS

p-Akt1 (5.Ser 473) is recommended for detection of Ser 473 phosphorylated Akt1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with Ser 473 phosphorylated Akt2 and Ser 473 phosphorylated Akt3.

Suitable for use as control antibody for Akt1 siRNA (h): sc-29195, Akt1 siRNA (m): sc-29196, Akt1 siRNA (r): sc-108059, Akt1 shRNA Plasmid (h): sc-29195-SH, Akt1 shRNA Plasmid (m): sc-29196-SH, Akt1 shRNA Plasmid (r): sc-108059-SH, Akt1 shRNA (h) Lentiviral Particles: sc-29195-V, Akt1 shRNA (m) Lentiviral Particles: sc-29196-V and Akt1 shRNA (r) Lentiviral Particles: sc-108059-V.

Molecular Weight of Akt1/Akt2/Akt3: 60/56/60 kDa.

DATA



Western blot analysis of Akt1 phosphorylation in untreated (**A**,**D**), mLIF treated (**B**,**E**) and mLIF and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) 3T3-L1 whole cell lysates. Antibodies tested include p-Akt1 (5.Ser 473): sc-293125 (**A**,**B**,**C**) and Akt1 (C-20): sc-1618 (**D**,**E**,**F**).

SELECT PRODUCT CITATIONS

1. Sabatini, N., et al. 2004. PI-3-kinase/NFκB mediated response of Jurkat T leukemic cells to two different chemotherapeutic drugs, etoposide and TRAIL. J. Cell. Biochem. 93: 301-311.
2. Litwiniuk, A., et al. 2016. FOXO1 and GSK-3β are main targets of Insulin-mediated myogenesis in C2C12 muscle cells. PLoS ONE 11: e0146726.
3. Ihira, K., et al. 2017. EZH2 inhibition suppresses endometrial cancer progression via miR-361/twist axis. Oncotarget 8: 13509-13520.
4. Prompunt, E., et al. 2018. The cardioprotective effects of secretory leukocyte protease inhibitor against myocardial ischemia/reperfusion injury. Exp. Ther. Med. 15: 5231-5242.
5. Pham, T.D., et al. 2019. Erythropoietin inhibits chemotherapy-induced cell death and promotes a senescence-like state in leukemia cells. Cell Death Dis. 10: 22.
6. Fang, M., et al. 2020. Enhancement of FAK alleviates ventilator-induced alveolar epithelial cell injury. Sci. Rep. 10: 419.

RESEARCH USE

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