SANTA CRUZ BIOTECHNOLOGY, INC.

p-Akt1/2/3 (Ser 473): sc-101629

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.

SOURCE

p-Akt1/2/3 (Ser 473) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 473 phosphorylated of Akt1 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-Akt1/2/3 (Ser 473) is recommended for detection of Ser 473 phosphorylated Akt1 and correspondingly Ser 474 phosphorylated Akt2 and 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 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of p-Akt1: 62 kDa.

Molecular Weight of p-Akt2: 56 kDa.

Molecular Weight of p-Akt3: 62 kDa.

Positive Controls: Akt1 (h): 293T Lysate: sc-158248, HeLa + heat shock cell lysate: sc-2272 or Jurkat whole cell lysate: sc-2204.

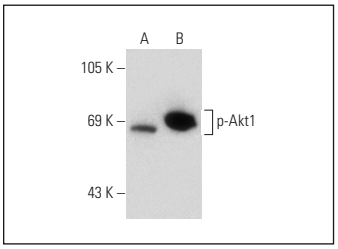
STORAGE

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

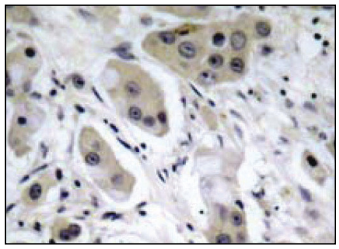
RESEARCH USE

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

DATA



p-Akt1/2/3 (Ser 473): sc-101629. Western blot analysis of Akt1 phosphorylation in non-transfected: sc-117752 (**A**) and human Akt1 transfected: sc-158248 (**B**) 293T whole cell lysates.



p-Akt1 (Ser 473): sc-101629. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing cytoplasmic staining.

SELECT PRODUCT CITATIONS

1. Rodrigues, C.M., et al. 2003. Tauroursodeoxycholic acid reduces apoptosis and protects against neurological injury after acute hemorrhagic stroke in rats. Proc. Natl. Acad. Sci. USA 100: 6087-6092.
2. Nakou, M., et al. 2010. Gene network analysis of bone marrow mononuclear cells reveals activation of multiple kinase pathways in human systemic lupus erythematosus. PLoS ONE 5: e13351.
3. Liu, W.F., et al. 2011. Role of tetraspanin CD151-α3/α6 integrin complex: Implication in angiogenesis CD151-integrin complex in angiogenesis. Int. J. Biochem. Cell Biol. 43: 642-650.
4. Rajendran, P., et al. 2011. Suppression of signal transducer and activator of transcription 3 activation by butein inhibits growth of human hepatocellular carcinoma *in vivo*. Clin. Cancer Res. 17: 1425-1439.
5. Kuo, S.H., et al. 2011. Lack of compensatory pAKT activation and eIF4E phosphorylation of lymphoma cells towards mTOR inhibitor, RAD001. Eur. J. Cancer 47: 1244-1257.
6. Deng, R., et al. 2011. PKB/Akt promotes DSB repair in cancer cells through upregulating Mre11 expression following ionizing radiation. Oncogene 30: 944-955.
7. Nagel, J.M., et al. 2011. Dietary walnuts inhibit colorectal cancer growth in mice by suppressing angiogenesis. Nutrition 28: 67-75.
8. Ryou, M.G., et al. 2012. Pyruvate protects the brain against ischemia-reperfusion injury by activating the erythropoietin signaling pathway. Stroke 43: 1101-1107.