SANTA CRUZ BIOTECHNOLOGY, INC.

Akt1 (D-17): sc-7126

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 Akt3 (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. Phosphorylation of both residues is important to generate a high level of Akt1 activity, and the phosphorylation of Thr 308 is not dependent on phosphorylation of Ser 473 *in vivo*. Thus, Akt proteins become phosphorylated and activated in Insulin/IGF-1-stimulated cells by an upstream kinase(s). The activation of Akt1 and Akt2 is inhibited by the PI kinase inhibitor Wortmannin, suggesting that the protein signals downstream of the PI kinases.

CHROMOSOMAL LOCATION

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

SOURCE

Akt1 (D-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Akt1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-7126 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Akt1 (D-17) is recommended for detection of 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)], 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); non cross-reactive with Akt2.

Akt1 (D-17) is also recommended for detection of Akt1 in additional species, including equine, canine, bovine, porcine and avian.

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

Molecular Weight of Akt1: 62 kDa.

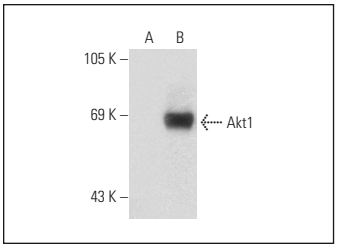
STORAGE

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

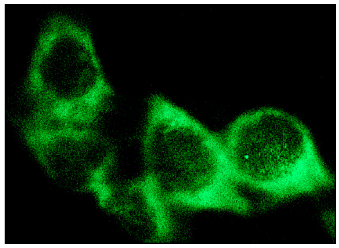
RESEARCH USE

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

DATA



Akt1 (D-17): sc-7126. Western blot analysis of Akt1 expression in non-transfected: sc-117752 (**A**) and human Akt1 transfected: sc-158248 (**B**) 293T whole cell lysates.



Akt1 (D-17): sc-7126. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic staining.

SELECT PRODUCT CITATIONS

1. Somwar, R., et al. 2001. GLUT4 translocation precedes the stimulation of glucose uptake by Insulin in muscle cells: potential activation of GLUT4 via p38 mitogen-activated protein kinase. Biochem. J. 359: 639-649.
2. Kirkegaard, T., et al. 2005. AKT activation predicts outcome in breast cancer patients treated with tamoxifen. J. Pathol. 207: 139-146.
3. Miao, Y., et al. 2010. Deletion of tau attenuates heat shock-induced injury in cultured cortical neurons. J. Neurosci. Res. 88: 102-110.
4. Santi, S.A., et al. 2010. The Akt isoforms are present at distinct subcellular locations. Am. J. Physiol., Cell Physiol. 298: C580-C591.
5. Yang, L.C., et al. 2010. Extranuclear estrogen receptors mediate the neuroprotective effects of estrogen in the rat hippocampus. PLoS ONE 5: e9851.
6. Sharma, N., et al. 2010. Insulin resistance for glucose uptake and Akt2 phosphorylation in the soleus, but not epitrochlearis, muscles of old vs. adult rats. J. Appl. Physiol. 108: 1631-1640.
7. Schmidt-Kittler, O., et al. 2010. PI3Kα inhibitors that inhibit metastasis. Oncotarget 1: 339-348.
8. Zhou, C., et al. 2011. Delayed ischemic postconditioning protects hippocampal CA1 neurons by preserving mitochondrial integrity via Akt/GSK3β signaling. Neurochem. Int. 59: 749-758.
9. Cenni, V., et al. 2011. Ankrd2/ARPP is a novel Akt2 specific substrate and regulates myogenic differentiation upon cellular exposure to H_2O_2. Mol. Biol. Cell 22: 2946-2956.
10. Sharma, N., et al. 2011. Mechanisms for increased Insulin-stimulated Akt phosphorylation and glucose uptake in fast- and slow-twitch skeletal muscles of calorie-restricted rats. Am. J. Physiol. Endocrinol. Metab. 300: E966-E978.
11. Le Page, C., et al. 2012. ErbB2/Her-2 regulates the expression of Akt2 in prostate cancer cells. Prostate 72: 777-788.