SANTA CRUZ BIOTECHNOLOGY, INC.

Akt2 (F-7): sc-5270

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 that is dependent on PDGFR-β tyrosine residues 740 and 751, which bind the subunit of the phosphatidylinositol 3-kinase (PI 3-kinase) complex. Akt proteins become phosphorylated and activated in Insulin/IGF-I-stimulated cells by an upstream kinase, 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, and this activation is inhibited by prior activation of protein kinase C. 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.

CHROMOSOMAL LOCATION

Genetic locus: AKT2 (human) mapping to 19q13.2.

SOURCE

Akt2 (F-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 445-470 at the C-terminus of Akt2 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-5270 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as agarose (sc-5270 AC) conjugate for immunoprecipitation, 500 µg/0.25 ml agarose in 1 ml.

APPLICATIONS

Akt2 (F-7) is recommended for detection of Akt2 of 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).

Suitable for use as control antibody for Akt2 siRNA (h): sc-29197, Akt2 shRNA Plasmid (h): sc-29197-SH and Akt2 shRNA (h) Lentiviral Particles: sc-29197-V.

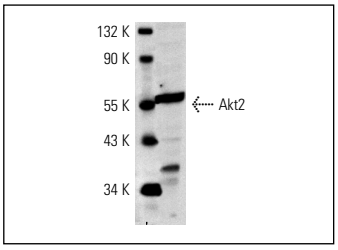
Molecular Weight of Akt2: 56 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206 or human adrenal gland tissue.

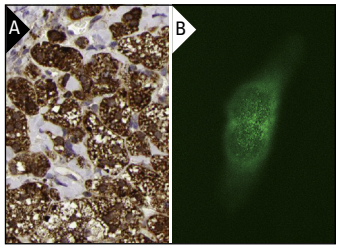
STORAGE

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

DATA



Akt2 (F-7): sc-5270. Western blot analysis of Akt2 expression in MCF7 whole cell lysate.



Akt2 (F-7): sc-5270. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of cortical cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (**A**). Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic staining (**B**).

SELECT PRODUCT CITATIONS

1. Gosmanov, A.R., et al. 2004. Impaired expression and Insulin-stimulated phosphorylation of Akt2 in muscle of obese patients with atypical diabetes. Am. J. Physiol. Endocrinol. Metab. 287: E8-E15.
2. Vasko, V., et al. 2004. Akt activation and localisation correlate with tumour invasion and oncogene expression in thyroid cancer. J. Med. Genet. 41: 161-170.
3. Kirkegaard, T., et al. 2005. Akt activation predicts outcome in breast cancer patients treated with tamoxifen. J. Pathol. 207: 139-146.
4. Thrash, B.R., et al. 2006. Akt1 provides an essential survival signal required for differentiation and stratification of primary human keratinocytes. J. Biol. Chem. 281: 12155-12162.
5. Guo, W.J., et al. 2007. Mel-18 acts as a tumor suppressor by repressing Bmi-1 expression and downregulating Akt activity in breast cancer cells. Cancer Res. 67: 5083-5089.
6. Lincová, E., et al. 2009. Multiple defects in negative regulation of the PKB/Akt pathway sensitise human cancer cells to the antiproliferative effect of non-steroidal anti-inflammatory drugs. Biochem. Pharmacol. 78: 561-572.
7. Hirano, I., et al. 2009. Depletion of Pleckstrin homology domain leucine-rich repeat protein phosphatases 1 and 2 by Bcr-Abl promotes chronic myelogenous leukemia cell proliferation through continuous phosphorylation of Akt isoforms. J. Biol. Chem. 284: 22155-22165.
8. Moro, L., et al. 2009. Mitochondrial DNA depletion in prostate epithelial cells promotes anoikis resistance and invasion through activation of PI3K/Akt2. Cell Death Differ. 16: 571-583.

RESEARCH USE

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