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-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, 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; Akt2 (mouse) mapping to 7 A3.

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 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Akt2 (F-7) is available conjugated to agarose (sc-5270 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-5270 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-5270 PE), fluorescein (sc-5270 FITC), Alexa Fluor® 488 (sc-5270 AF488), Alexa Fluor® 546 (sc-5270 AF546), Alexa Fluor® 594 (sc-5270 AF594) or Alexa Fluor® 647 (sc-5270 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-5270 AF680) or Alexa Fluor® 790 (sc-5270 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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% stabilizer protein).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

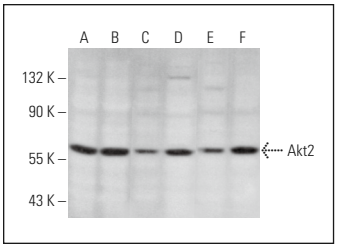
Akt2 (F-7) is recommended for detection of Akt2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Akt2 siRNA (h): sc-29197, Akt2 siRNA (m): sc-38910, Akt2 shRNA Plasmid (h): sc-29197-SH, Akt2 shRNA Plasmid (m): sc-38910-SH, Akt2 shRNA (h) Lentiviral Particles: sc-29197-V and Akt2 shRNA (m) Lentiviral Particles: sc-38910-V.

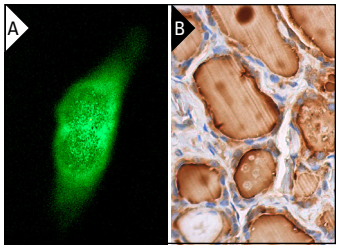
Molecular Weight of Akt2: 56 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, HL-60 whole cell lysate: sc-2209 or A549 cell lysate: sc-2413.

DATA



Akt2 (F-7): sc-5270. Western blot analysis of Akt2 expression in HL-60 (**A**), Jurkat (**B**), MIA PaCa-2 (**C**), T-47D (**D**), MDA-MB-231 (**E**) and A549 (**F**) whole cell lysates.



Akt2 (F-7): sc-5270. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic staining (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing cytoplasmic staining of glandular cells (**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. Lee, T.M., et al. 2017. Inhibition of infarction-induced sympathetic innervation with endothelin receptor antagonism via a PI3K/GSK-3β-dependent pathway. Lab. Invest. 97: 243-255.
3. Shen, Y., et al. 2018. Prohibitin-2 negatively regulates Akt2 expression to promote prostate cancer cell migration. Int. J. Mol. Med. 41: 1147-1155.
4. Zhang, J., et al. 2019. Glucose drives growth factor-independent esophageal cancer proliferation via phosphohistidine-FAK signaling. Cell. Mol. Gastroenterol. Hepatol. 8: 37-60.
5. Goldbraikh, D., et al. 2020. USP1 deubiquitinates Akt to inhibit PI3K-Akt-FoxO signaling in muscle during prolonged starvation. EMBO Rep. 21: e48791.

RESEARCH USE

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