SANTA CRUZ BIOTECHNOLOGY, INC.

Akt1 (G-5): sc-55523

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 kinases. The activation of Akt1 and Akt2 is inhibited by the PI kinase inhibitor wortmannin, suggesting that the protein signals downstream of the PI kinases.

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.

CHROMOSOMAL LOCATION

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

SOURCE

Akt1 (G-5) is a mouse monoclonal antibody raised against amino acids 345-480 of 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.

Akt1 (G-5) is available conjugated to agarose (sc-55523 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55523 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55523 PE), fluorescein (sc-55523 FITC), Alexa Fluor® 488 (sc-55523 AF488), Alexa Fluor® 546 (sc-55523 AF546), Alexa Fluor® 594 (sc-55523 AF594) or Alexa Fluor® 647 (sc-55523 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55523 AF680) or Alexa Fluor® 790 (sc-55523 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

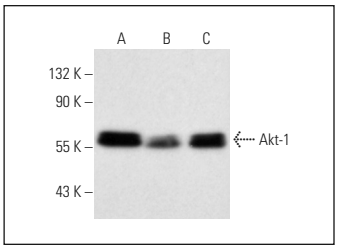
Akt1 (G-5) is recommended for detection of Akt1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

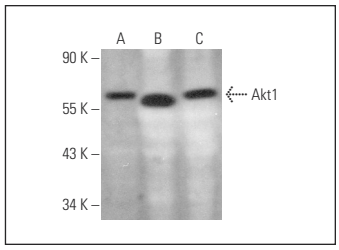
Molecular Weight of Akt1: 62 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, KNRK whole cell lysate: sc-2214 or IMR-32 cell lysate: sc-2409.

DATA



Akt-1 (G-5): sc-55523. Western blot analysis of Akt-1 expression in MCF7 (**A**), NIH/3T3 (**B**) and KNRK (**C**) whole cell lysates.



Akt1 (G-5): sc-55523. Western blot analysis of Akt1 expression in ZR-75-1 (**A**), IMR-32 (**B**) and A549 (**C**) whole cell lysates.

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. Park, G.B., et al. 2017. Sorafenib controls the epithelial-mesenchymal transition of ovarian cancer cells via EGF and the CD44-HA signaling pathway in a cell type-dependent manner. Mol. Med. Rep. 16: 1826-1836.
3. Wang, J., et al. 2018. Curcumin inhibits the growth of liver cancer stem cells through the phosphatidylinositol 3-kinase/protein kinase B/mammalian target of rapamycin signaling pathway. Exp. Ther. Med. 15: 3650-3658.
4. Antonova, A., et al. 2019. Heat-shock protein 90 controls the expression of cell-cycle genes by stabilizing metazoan-specific host-cell factor HCFC1. Cell Rep. 29: 1645-1659.e9.
5. Liu, P., et al. 2020. Par6 regulates cell cycle progression through enhancement of Akt/PI3K/GSK-3β signaling pathway activation in glioma. FASEB J. 34: 1481-1496.

RESEARCH USE

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