SANTA CRUZ BIOTECHNOLOGY, INC.

Akt1 (C-20): sc-1618

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.

SOURCE

Akt1 (C-20) is available as either goat (sc-1618) or rabbit (sc-1618-R) polyclonal affinity purified antibody raised against a peptide mapping at 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-1618 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as phycoerythrin conjugate for flow cytometry, sc-1618 PE, 100 tests; and as agarose conjugate for immunoprecipitation, sc-1618 AC, 500 µg/0.25 ml agarose in 1 ml.

APPLICATIONS

Akt1 (C-20) is recommended for detection of Akt1 and, to a lesser extent, Akt2 and Akt3 of mouse, rat, human and *Xenopus laevis* 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), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Akt1 (C-20) is also recommended for detection of Akt1 and, to a lesser extent, Akt2 and Akt3 in additional species, including equine, canine, bovine, porcine and avian.

Molecular Weight of Akt1: 62 kDa.

Positive Controls: Akt1 (h): 293T Lysate: sc-158248, HeLa whole cell lysate: sc-2200 or IMR-32 cell lysate: sc-2409.

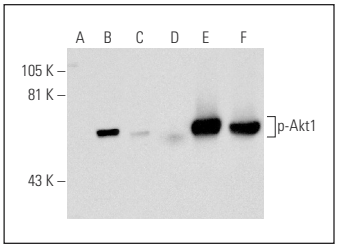
STORAGE

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

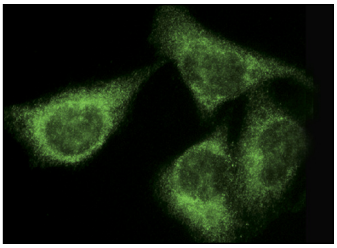
RESEARCH USE

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

DATA



Western blot analysis of Akt1 phosphorylation in non-transfected: sc-117752 (**A**,**D**), untreated human Akt1 transfected: sc-158248 (**B**,**E**) and lambda protein phosphatase (sc-200312A) treated human Akt1 transfected: sc-158248 (**C**,**F**) 293T whole cell lysates. Antibodies tested include p-Akt1 (Thr 308): sc-135650 (**A-C**) and Akt1 (C-20): sc-1618 (**D-F**).



Akt1 (C-20): sc-1618. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Datta, S.R., et al. 1997. Akt phosphorylation of Bad couples survival signals to the cell intrinsic death machinery. Cell 91: 231-241.
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3. Li, M., et al. 2012. HBcAg induces PD-1 upregulation on $CD4^+$T cells through activation of JNK, ERK and PI3K/AKT pathways in chronic hepatitis-B-infected patients. Lab. Invest. 92: 295-304.
4. Razolli, D.S., et al. 2012. Hypothalamic action of glutamate leads to body mass reduction through a mechanism partially dependent on JAK2. J. Cell. Biochem. 113: 1182-1189.
5. Urtasun, R., et al. 2012. Osteopontin, an oxidant stress sensitive cytokine, up-regulates collagen-I via integrin $\alpha_V\beta_3$ engagement and PI3K/pAkt/NFκB signaling. Hepatology 55: 594-608.
6. Cintra, D.E., et al. 2012. Unsaturated fatty acids revert diet-induced hypothalamic inflammation in obesity. PLoS ONE 7: e30571.
7. Ramis, G., et al. 2012. EGFR inhibition in glioma cells modulates Rho signaling to inhibit cell motility and invasion and cooperates with temozolomide to reduce cell growth. PLoS ONE 7: e38770.
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10. Jia, Y. 2012. Endogenous erythropoietin signaling facilitates skeletal muscle repair and recovery following pharmacologically induced damage. FASEB J. 26: 2847-2858.