SANTA CRUZ BIOTECHNOLOGY, INC.

p-Akt1/2/3 (C-11): sc-514032

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. 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. 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. However, the activation of Akt3 by Insulin is inhibited by prior activation of protein kinase C via a mechanism that does not require the presence of the PH domain. 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.

SOURCE

p-Akt1/2/3 (C-11) is a mouse monoclonal antibody specific for an epitope mapping to a short amino acid sequence containing Ser 473 phosphorylated Akt1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-Akt1/2/3 (C-11) is available conjugated to agarose (sc-514032 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514032 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514032 PE), fluorescein (sc-514032 FITC), Alexa Fluor® 488 (sc-514032 AF488), Alexa Fluor® 546 (sc-514032 AF546), Alexa Fluor® 594 (sc-514032 AF594) or Alexa Fluor® 647 (sc-514032 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514032 AF680) or Alexa Fluor® 790 (sc-514032 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-514032 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

p-Akt1/2/3 (C-11) is recommended for detection of Ser 473 phosphorylated Akt1 and correspondingly Ser 474 phosphorylated Akt2 and correspondingly Ser 472 phosporylated Akt3 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

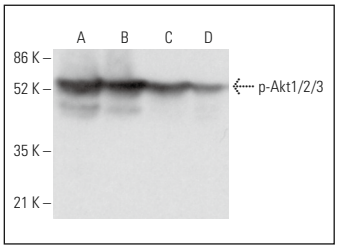
Molecular Weight of p-Akt1: 62 kDa.

Molecular Weight of p-Akt2: 56 kDa.

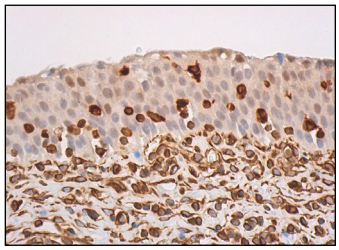
Molecular Weight of p-Akt3: 60 kDa.

Positive Controls: SJRH30 cell lysate: sc-2287, Sol8 cell lysate: sc-2249 or C2C12 whole cell lysate: sc-364188.

DATA



p-Akt1/2/3 (C-11): sc-514032. Western blot analysis of Akt1/2/3 phosphorylation in SJRH30 (**A**), OVCAR-3 (**B**), Sol8 (**C**) and C2C12 (**D**) whole cell lysates.



p-Akt1/2/3 (C-11): sc-514032. Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing nuclear staining of subset of urothelial cells and nuclear envelope staining of interstitial cells.

SELECT PRODUCT CITATIONS

1. Jiang, A.G., et al. 2015. Short hairpin RNA targeting Akt1 and PI3K/p85 suppresses the proliferation and self-renewal of lung cancer stem cells. Mol. Med. Rep. 12: 363-370.
2. Jia, X., et al. 2017. Aroclor1254 disrupts the blood-testis barrier by promoting endocytosis and degradation of junction proteins via p38 MAPK pathway. Cell Death Dis. 8: e2823.
3. Kleemann, M., et al. 2018. MiR-744-5p inducing cell death by directly targeting HNRNPC and NFIX in ovarian cancer cells. Sci. Rep. 8: 9020.
4. Kim, J.E., et al. 2019. TM4SF5-mediated CD44v8-10 splicing variant promotes survival of type II alveolar epithelial cells during idiopathic pulmonary fibrosis. Cell Death Dis. 10: 645.
5. Kim, A.R., et al. 2020. Screening ginseng saponins in progenitor cells identifies 20(R)-ginsenoside Rh_2 as an enhancer of skeletal and cardiac muscle regeneration. Sci. Rep. 10: 4967.

RESEARCH USE

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