

# Akt2 (8B7): sc-81436

## BACKGROUND

The serine/threonine kinase Akt family contains several members, including Akt1 (also designated PKB or RacPK), Akt2 (also designated PKB $\beta$  or RacPK- $\beta$ ) and Akt3 (also designated PKB $\gamma$  or thymoma 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- $\beta$  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-I (IGF-I) results in phosphorylation of both Thr 308 and Ser 473. Akt proteins become phosphorylated and activated in Insulin/IGF-I-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 (8B7) is a mouse monoclonal antibody raised against amino acids 107-123 of Akt2 of human origin.

## PRODUCT

Each vial contains 50  $\mu$ g IgG<sub>2a</sub> in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

## APPLICATIONS

Akt2 (8B7) 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  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and immunofluorescence (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: Akt2 (m): 293T Lysate: sc-126407, A-431 whole cell lysate: sc-2201 or Akt2 (h): 293T Lysate: sc-116831.

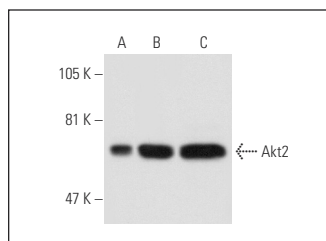
## STORAGE

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

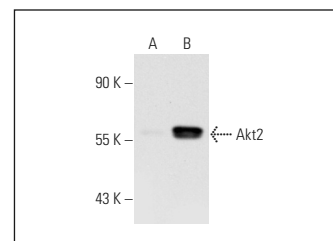
## RESEARCH USE

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

## DATA



Akt2 (8B7): sc-81436. Western blot analysis of Akt2 expression in non-transfected 293T: sc-117752 (A), human Akt2 transfected 293T: sc-116831 (B) and A-431 (C) whole cell lysates.



Akt2 (8B7): sc-81436. Western blot analysis of Akt2 expression in non-transfected: sc-117752 (A) and mouse Akt2 transfected: sc-126407 (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

- Wang, H.Y., et al. 2011. Repetitive transcranial magnetic stimulation enhances BDNF-TrkB signaling in both brain and lymphocyte. *J. Neurosci.* 31: 11044-11054.
- Grabinski, N., et al. 2011. Distinct functional roles of Akt isoforms for proliferation, survival, migration and EGF-mediated signalling in lung cancer derived disseminated tumor cells. *Cell. Signal.* 23: 1952-1960.
- Grabinski, N., et al. 2012. Combined targeting of Akt and mTOR synergistically inhibits proliferation of hepatocellular carcinoma cells. *Mol. Cancer* 11: 85.
- Riaz, A., et al. 2012. Receptor-specific mechanisms regulate phosphorylation of Akt at Ser473: role of RICTOR in  $\beta$ 1 integrin-mediated cell survival. *PLoS ONE* 7: e32081.
- Xiang, R.F., et al. 2016. Ras-related C3 botulinum toxin substrate (Rac) and Src family kinases (SFK) are proximal and essential for phosphatidylinositol 3-kinase (PI3K) activation in natural killer (NK) cell-mediated direct cytotoxicity against *Cryptococcus neoformans*. *J. Biol. Chem.* 291: 6912-6922.
- Halon-Golabek, M., et al. 2018. hmSOD1 gene mutation-induced disturbance in iron metabolism is mediated by impairment of Akt signalling pathway. *J. Cachexia Sarcopenia Muscle* 9: 557-569.
- Andelova, K., et al. 2022. Cardiac Cx43 signaling is enhanced and TGF- $\beta$ 1/SMAD2/3 suppressed in response to cold acclimation and modulated by thyroid status in hairless SHR<sup>M</sup>. *Biomedicines* 10: 1707.
- Sun, M., et al. 2022. SR protein kinases regulate the splicing of cardiomyopathy-relevant genes via phosphorylation of the RSRSP stretch in RBM20. *Genes* 13: 1526.

## CONJUGATES

See **Akt2 (F-7): sc-5270** for Akt2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.