

# Akt1 (F-8): sc-271149

## 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 Akt 3 (also designated PKBy 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-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.

## CHROMOSOMAL LOCATION

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

## SOURCE

Akt1 (F-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 454-480 at the C-terminus of Akt1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG $_1$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-271149 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

Akt1 (F-8) 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  $\mu$ g per 100-500  $\mu$ g 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).

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.

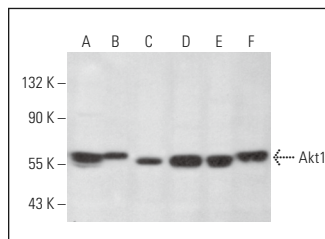
Molecular Weight of Akt1: 62 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409, KNRK whole cell lysate: sc-2214 or MIA PaCa-2 cell lysate: sc-2285.

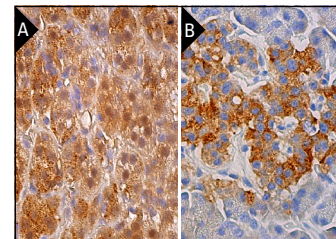
## STORAGE

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

## DATA



Akt1 (F-8): sc-271149. Western blot analysis of Akt1 expression in HeLa (A), ZR-75-1 (B), BT-20 (C), IMR-32 (D), KNRK (E) and MIA PaCa-2 (F) whole cell lysates.



Akt1 (F-8): sc-271149. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing nuclear and cytoplasmic staining of glandular cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans (B).

## SELECT PRODUCT CITATIONS

- Spears, M., et al. 2012. Proximity ligation assays for isoform-specific Akt activation in breast cancer identify activated Akt1 as a driver of progression. *J. Pathol.* 227: 481-489.
- Wang, H., et al. 2019. Two novel 1,4-naphthoquinone derivatives induce human gastric cancer cell apoptosis and cell cycle arrest by regulating reactive oxygen species-mediated MAPK/Akt/Stat3 signaling pathways. *Mol. Med. Rep.* 20: 2571-2582.
- Huang, C.W., et al. 2020. FGF9 induces functional differentiation to Schwann cells from human adipose derived stem cells. *Theranostics* 10: 2817-2831.
- Butler, D.S.C., et al. 2021. A bacterial protease depletes c-Myc and increases survival in mouse models of bladder and colon cancer. *Nat. Biotechnol.* 39: 754-764.
- Momchilova, A., et al. 2022. Effect of quercetin and fingolimod, alone or in combination, on the sphingolipid metabolism in Hep G2 cells. *Int. J. Mol. Sci.* 23: 13916.
- Horat, M.F., et al. 2023. Pro-inflammatory GPR75 and anti-apoptotic phospholipase signaling pathways contribute to the ameliorating effect of soluble epoxide hydrolase inhibition on chronic experimental autoimmune encephalomyelitis in mice. *Cell. Mol. Biol.* 69: 9-16.

## RESEARCH USE

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



See **Akt1 (B-1): sc-5298** for Akt1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.