

Akt1 (A-11): sc-377457

BACKGROUND

The serine/threonine kinase Akt family contains several members, including Akt1 (also designated PKB or RacPK), Akt2 (also designated PKB β or RacPK- β b) and Akt 3 (also designated PKB γ 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. Activation is dependent on PDGFR- β Tyr 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. 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 (A-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 443-479 near the C-terminus of Akt1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ 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-377457 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Akt1 (A-11) 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 μ g per 100-500 μ 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.

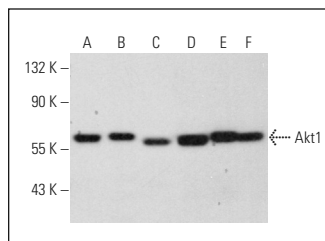
Molecular Weight of Akt1: 62 kDa.

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

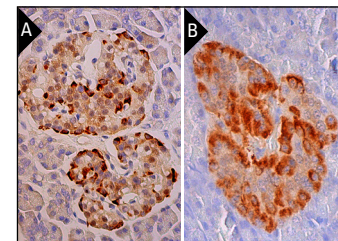
STORAGE

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

DATA



Akt1 (A-11): sc-377457. Western blot analysis of Akt1 expression in MIA PaCa-2 (A), ZR-75-1 (B), BT-20 (C), IMR-32 (D), NIH/3T3 (E) and KNRK (F) whole cell lysates.



Akt1 (A-11): sc-377457. Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic and nuclear staining of Islets of Langerhans (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans (B).

SELECT PRODUCT CITATIONS

- Bai, T., et al. 2013. Resveratrol mitigates isoflurane-induced neuroapoptosis by inhibiting the activation of the Akt-regulated mitochondrial apoptotic signaling pathway. *Int. J. Mol. Med.* 32: 819-826.
- Wang, L., et al. 2015. Hypoxia promotes the proliferation of MC3T3-E1 cells via the hypoxia-inducible factor-1 α signaling pathway. *Mol. Med. Rep.* 12: 5267-5273.
- Pan, Y., et al. 2016. MiR-646 is a key negative regulator of EGFR pathway in lung cancer. *Exp. Lung Res.* 42: 286-295.
- Zou, H., et al. 2017. Protective role of α -lipoic acid in hyperuricemia-induced endothelial dysfunction. *Exp. Ther. Med.* 13: 3047-3054.
- Grassilli, S., et al. 2018. Vav1 down-modulates Akt in different breast cancer subtypes: a new promising chance to improve breast cancer outcome. *Mol. Oncol.* 12: 1012-1025.
- Zhang, H., et al. 2019. Cadmium results in accumulation of autophagosomes-dependent apoptosis through activating Akt-impaired autophagic flux in neuronal cells. *Cell. Signal.* 55: 26-39.
- Gravina, G.L., et al. 2019. The small molecule ephrin receptor inhibitor, GLPG1790, reduces renewal capabilities of cancer stem cells, showing anti-tumour efficacy on preclinical glioblastoma models. *Cancers* 11: 359.

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.