

Akt1/2/3 (5C10): sc-81434

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) and Akt3 (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. 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.

REFERENCES

- Burgering, B.M., et al. 1995. Protein kinase B (c-Akt) in phosphatidylinositol 3-OH kinase signal transduction. *Nature* 376: 599-602.
- Franke, T.F., et al. 1995. The protein kinase encoded by the Akt proto-oncogene is a target of the PDGF-activated phosphatidylinositol 3-kinase. *Cell* 81: 727-736.
- Datta, K., et al. 1995. AH/PH domain-mediated interaction between Akt molecules and its potential role in Akt regulation. *Mol. Cell. Biol.* 15: 2304-2310.

SOURCE

Akt1/2/3 (5C10) is a mouse monoclonal antibody raised against amino acids 466-480 of Akt1 of human origin.

PRODUCT

Each vial contains 50 μ g IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

Akt1/2/3 (5C10) is recommended for detection of Akt1, Akt2 and Akt3 of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)].

Molecular Weight of Akt1/2/3: 62 kDa.

Positive Controls: Akt1 (h): 293T Lysate: sc-158248, MCF7 whole cell lysate: sc-2206 or MDA-MB-231 cell lysate: sc-2232.

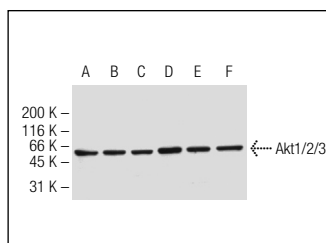
STORAGE

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

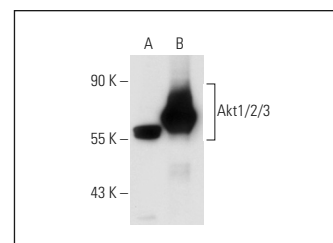
RESEARCH USE

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

DATA



Akt1/2/3 (5C10): sc-81434. Western blot analysis of Akt1/2/3 expression in serum starved SW480 (A), SW620 (B), HT29 (C), MCF7 (D), MDA-MB-231 (E), and T-47D (F) whole cell lysates.



Akt1/2/3 (5C10): sc-81434. Western blot analysis of Akt1/2/3 expression in non-transfected: sc-117752 (A) and human Akt1 transfected: sc-158248 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Shen, Z., et al. 2008. The kringle 1 domain of hepatocyte growth factor has antiangiogenic and antitumor cell effects on hepatocellular carcinoma. *Cancer Res.* 68: 404-414.
- Ho, K.K., et al. 2009. The novel molecule 2-[5-(2-chloroethyl)-2-acetoxybenzyl]-4-[2-chloroethyl]-phenyl acetate inhibits phosphoinositide 3-kinase/Akt/mammalian target of rapamycin signalling through JNK activation in cancer cells. *FEBS J.* 276: 4037-4050.
- Amodio, N., et al. 2010. Oncogenic role of the E3 ubiquitin ligase NEDD4-1, a PTEN negative regulator, in non-small-cell lung carcinomas. *Am. J. Pathol.* 177: 2622-2634.
- Liu, B., et al. 2014. Endothelin A receptor antagonism enhances inhibitory effects of anti-ganglioside GD2 monoclonal antibody on invasiveness and viability of human osteosarcoma cells. *PLoS ONE* 9: e93576.
- Gu, C., et al. 2015. Rosiglitazone attenuates early brain injury after experimental subarachnoid hemorrhage in rats. *Brain Res.* 1624: 199-207.
- Yan, Y., et al. 2016. Elevated RNA expression of long non-coding HOTAIR promotes cell proliferation and predicts a poor prognosis in patients with diffuse large B cell lymphoma. *Mol. Med. Rep.* 13: 5125-5131.
- Reitsma, J.M., et al. 2017. Composition and regulation of the cellular repertoire of SCF ubiquitin ligases. *Cell* 171: 1326-1339.e14.
- Li, L. and Zhang, H. 2018. MicroRNA-379 inhibits cell proliferation and invasion in glioma via targeting metadherin and regulating PTEN/Akt pathway. *Mol. Med. Rep.* 17: 4049-4056.
- Wang, L., et al. 2019. miR-122 and miR-199 synergistically promote autophagy in oral lichen planus by targeting the Akt/mTOR pathway. *Int. J. Mol. Med.* 43: 1373-1381.

CONJUGATES

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