

# Akt1/2 (N-19): sc-1619



The Power to Question

## 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 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- $\beta$  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, 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. Taken together, this data strongly suggests that the protein signals downstream of the PI kinases.

## CHROMOSOMAL LOCATION

Genetic locus: AKT1 (human) mapping to 14q32.32, AKT2 (human) mapping to 19q13.2; Akt1 (mouse) mapping to 12 F1, Akt2 (mouse) mapping to 7 A3.

## SOURCE

Akt1/2 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping N-terminus (h) of Akt1 of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-1619 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as agarose (sc-1619 AC) conjugate for immunoprecipitation, 500  $\mu$ g/0.25 ml agarose in 1 ml; as TransCruz (sc-1619 X) reagent for ChIP application, 200  $\mu$ g/0.1 ml; as fluorescein (sc-1619 FITC) or rhodamine (sc-1619 TRITC) conjugates for immunofluorescence, 200  $\mu$ g/ml; and as Alexa Fluor<sup>®</sup> 405 (sc-1619 AF405), Alexa Fluor<sup>®</sup> 488 (sc-1619 AF488) or Alexa Fluor<sup>®</sup> 647 (sc-1619 AF647) conjugates for immunofluorescence; 100  $\mu$ g/2 ml.

## APPLICATIONS

Akt1/2 (N-19) is recommended for detection of Akt1 and Akt2 of mouse, rat, human and *Xenopus laevis* 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500). Akt1/2 (N-19) is also recommended for detection of Akt1 and Akt2 in additional species, including equine, canine, bovine, porcine and avian.

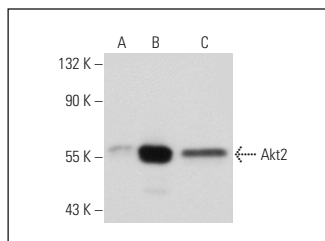
Molecular Weight of Akt1/2: 60/56 kDa.

Positive Controls: Akt2 (m): 293T Lysate: sc-126407, KNRK whole cell lysate: sc-2214 or HeLa whole cell lysate: sc-2200.

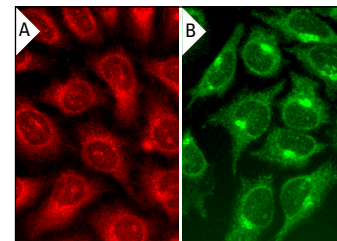
## STORAGE

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

## DATA



Akt1/2 (N-19): sc-1619. Western blot analysis of Akt2 expression in non-transfected 293T: sc-117752 (A), mouse Akt2 transfected 293T: sc-126407 (B) and KNRK (C) whole cell lysates.



Akt1/2 (N-19)-R: sc-1619-R. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A,B).

## SELECT PRODUCT CITATIONS

1. Phillips-Mason, P.J., et al. 2000. Phosphatidylinositol 3-kinase activity regulates  $\alpha$ -thrombin-stimulated G<sub>1</sub> progression by its effect on cyclin D1 expression and cyclin-dependent kinase 4 activity. *J. Biol. Chem.* 275: 18046-18053.
2. Karki, R., et al. 2011. The MARCH family E3 ubiquitin ligase K5 alters monocyte metabolism and proliferation through receptor tyrosine kinase modulation. *PLoS Pathog.* 7: e1001331.
3. Ching, L.C., et al. 2011. Molecular mechanisms of activation of endothelial nitric oxide synthase mediated by transient receptor potential vanilloid type 1. *Cardiovasc. Res.* 91: 492-501.
4. Calegari, V.C., et al. 2011. Inflammation of the hypothalamus leads to defective pancreatic islet function. *J. Biol. Chem.* 286: 12870-12880.
5. Li, H., et al. 2012. Targeting of mTORC2 prevents cell migration and promotes apoptosis in breast cancer. *Breast Cancer Res. Treat.* 134: 1057-1066.
6. Nagini, Siddavarama., et al. 2013. Chlorophyllin abrogates canonical Wnt/ $\beta$ -catenin signaling pathway and angiogenesis to inhibit the development of DMBA-induced hamster cheek pouch carcinomas. *Cell. Oncol.* 36: 179.

## RESEARCH USE

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

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA



Try **Akt1 (B-1): sc-5298** or **Akt1/2/3 (5C10): sc-81434**, our highly recommended monoclonal alternatives to Akt1/2 (N-19). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **Akt1 (B-1): sc-5298**.