

Akt1 (B-1): sc-5298

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 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. 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.

REFERENCE

1. Burgering, B.M., et al. 1995. Protein kinase B (c-Akt) in phosphatidylinositol-3-OH kinase signal transduction. *Nature* 376: 599-602.
2. 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.

CHROMOSOMAL LOCATION

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

SOURCE

Akt1 (B-1) is a mouse monoclonal antibody raised against amino acids 345-480 of Akt1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG γ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Akt1 (B-1) is available conjugated to agarose (sc-5298 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-5298 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-5298 PE), fluorescein (sc-5298 FITC), Alexa Fluor[®] 488 (sc-5298 AF488), Alexa Fluor[®] 546 (sc-5298 AF546), Alexa Fluor[®] 594 (sc-5298 AF594) or Alexa Fluor[®] 647 (sc-5298 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-5298 AF680) or Alexa Fluor[®] 790 (sc-5298 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

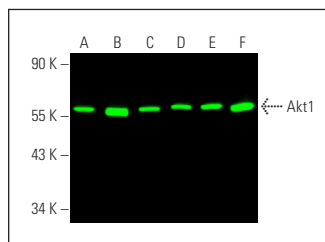
Akt1 (B-1) is recommended for detection of Akt1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 μ g per 1 x 10⁶ cells) 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.

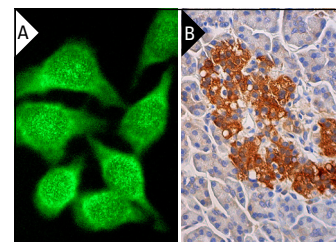
Molecular Weight of Akt1: 62 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, MCF7 whole cell lysate: sc-2206 or BT-20 cell lysate: sc-2223.

DATA



Akt1 (B-1) Alexa Fluor[®] 680: sc-5298 AF680. Direct near-infrared western blot analysis of Akt1 expression in NIH/3T3 (A), IMR-32 (B), A549 (C), BT-20 (D), MCF7 (E) and KNRK (F) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214.



Akt1 (B-1): sc-5298. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear staining (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans (B).

SELECT PRODUCT CITATIONS

1. Yellaturu, C.R., et al. 2002. N-ethylmaleimide inhibits platelet-derived growth factor BB-stimulated Akt phosphorylation via activation of protein phosphatase 2A. *J. Biol. Chem.* 277: 40148-40155.
2. Do, M.H., et al. 2022. CD46 protects the bladder cancer cells from cetuximab-mediated cytotoxicity. *Sci. Rep.* 12: 22420.
3. Romero-Herrera, I., et al. 2023. Adipose tissue homeostasis orchestrates the oxidative, energetic, metabolic and endocrine disruption induced by binge drinking in adolescent rats. *J. Physiol.* 601: 5617-5633.
4. Ramos, A.D., et al. 2024. Proteome-wide CETSA reveals diverse apoptosis-inducing mechanisms converging on an initial apoptosis effector stage at the nuclear periphery. *Cell Rep.* 43: 114784.

RESEARCH USE

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