

**ARG56419**  
anti-Akt 1 antibodyPackage: 50 µl  
Store at: -20°C

### Summary

Product Description	Rabbit Polyclonal antibody recognizes Akt 1
Tested Reactivity	Hu, Ms, Rat
Tested Application	IHC-P, WB
Specificity	This antibody detects endogenous levels of Akt1 protein and does not cross-react with Akt2 or Akt3.
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Target Name	Akt 1
Species	Human
Immunogen	Synthetic peptide around aa. 100-150 of Human Akt1.
Conjugation	Un-conjugated
Alternate Names	Protein kinase B alpha; Proto-oncogene c-Akt; RAC; PKB alpha; RAC-ALPHA; CWS6; PRKBA; AKT; PKB; RAC-PK-alpha; PKB-ALPHA; RAC-alpha serine/threonine-protein kinase; EC 2.7.11.1; Protein kinase B

### Application Instructions

Application table	Application	Dilution
	IHC-P	1:50 - 1:200
	WB	1:500 - 1:1000

**Application Note** \* The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist.

### Properties

Form	Liquid
Purification	Affinity purification with immunogen.
Purity	> 95% (by SDS-PAGE).
Buffer	PBS (pH 7.2) and 0.05% Sodium azide.
Preservative	0.05% Sodium azide
Concentration	1 mg/ml
Storage instruction	For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C or below. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use.

**Note**

For laboratory research only, not for drug, diagnostic or other use.

## Bioinformation

**Gene Symbol**

AKT1

**Gene Full Name**

v-akt murine thymoma viral oncogene homolog 1

**Background**

The serine-threonine protein kinase encoded by the AKT1 gene is catalytically inactive in serum-starved primary and immortalized fibroblasts. AKT1 and the related AKT2 are activated by platelet-derived growth factor. The activation is rapid and specific, and it is abrogated by mutations in the pleckstrin homology domain of AKT1. It was shown that the activation occurs through phosphatidylinositol 3-kinase. In the developing nervous system AKT is a critical mediator of growth factor-induced neuronal survival. Survival factors can suppress apoptosis in a transcription-independent manner by activating the serine/threonine kinase AKT1, which then phosphorylates and inactivates components of the apoptotic machinery. Mutations in this gene have been associated with the Proteus syndrome. Multiple alternatively spliced transcript variants have been found for this gene. [provided by RefSeq, Jul 2011]

**Function**

Plays a role as a key modulator of the AKT-mTOR signaling pathway controlling the tempo of the process of newborn neurons integration during adult neurogenesis, including correct neuron positioning, dendritic development and synapse formation (By similarity). General protein kinase capable of phosphorylating several known proteins. Phosphorylates TBC1D4. Signals downstream of phosphatidylinositol 3-kinase (PI(3)K) to mediate the effects of various growth factors such as platelet-derived growth factor (PDGF), epidermal growth factor (EGF), insulin and insulin-like growth factor I (IGF-I). Plays a role in glucose transport by mediating insulin-induced translocation of the GLUT4 glucose transporter to the cell surface. Mediates the antiapoptotic effects of IGF-I. Mediates insulin-stimulated protein synthesis by phosphorylating TSC2 at 'Ser-939' and 'Thr-1462', thereby activating mTORC1 signaling and leading to both phosphorylation of 4E-BP1 and in activation of RPS6KB1. Promotes glycogen synthesis by mediating the insulin-induced activation of glycogen synthase. The activated form can suppress FoxO gene transcription and promote cell cycle progression. Essential for the SPATA13-mediated regulation of cell migration and adhesion assembly and disassembly. [UniProt]

**Research Area**

Cancer antibody; Cell Death antibody; Gene Regulation antibody; Metabolism antibody; Signaling Transduction antibody; Glucose uptake: Insulin Receptor Dependent Pathway Study antibody

**Calculated Mw**

56 kDa

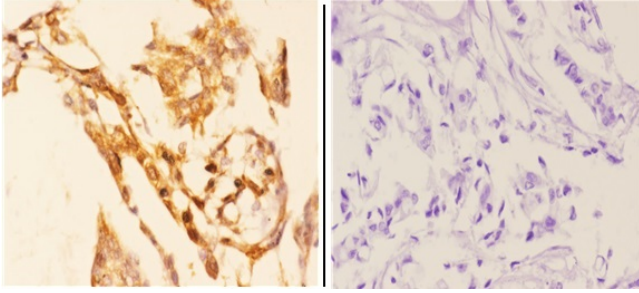
**PTM**

O-GlcNAcylation at Thr-305 and Thr-312 inhibits activating phosphorylation at Thr-308 via disrupting the interaction between AKT1 and PDPK1. O-GlcNAcylation at Ser-473 also probably interferes with phosphorylation at this site.

Phosphorylation on Thr-308, Ser-473 and Tyr-474 is required for full activity. Activated TNK2 phosphorylates it on Tyr-176 resulting in its binding to the anionic plasma membrane phospholipid PA. This phosphorylated form localizes to the cell membrane, where it is targeted by PDPK1 and PDPK2 for further phosphorylations on Thr-308 and Ser-473 leading to its activation. Ser-473 phosphorylation by mTORC2 favors Thr-308 phosphorylation by PDPK1. Phosphorylated at Thr-308 and Ser-473 by IKBKE and TBK1. Ser-473 phosphorylation is enhanced by interaction with AGAP2 isoform 2 (PIKE-A). Ser-473 phosphorylation is enhanced in focal cortical dysplasias with Taylor-type balloon cells. Ser-473 phosphorylation is enhanced by signaling through activated FLT3. Dephosphorylated at Thr-308 and Ser-473 by PP2A phosphatase. The phosphorylated form of PPP2R5B is required for bridging AKT1 with PP2A phosphatase. Ser-473 is dephosphorylated by CPPED1, leading to termination of signaling.

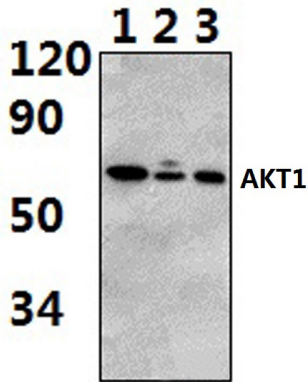
Ubiquitinated via 'Lys-48'-linked polyubiquitination by ZNRF1, leading to its degradation by the proteasome (By similarity). Ubiquitinated; undergoes both 'Lys-48'- and 'Lys-63'-linked polyubiquitination. TRAF6-induced 'Lys-63'-linked AKT1 ubiquitination is critical for phosphorylation and activation. When ubiquitinated, it translocates to the plasma membrane, where it becomes phosphorylated. When fully phosphorylated and translocated into the nucleus, undergoes 'Lys-48'-polyubiquitination catalyzed by TTC3, leading to its degradation by the proteasome. Also ubiquitinated by TRIM13 leading to its proteasomal degradation. Phosphorylated, undergoes 'Lys-48'-linked polyubiquitination preferentially at Lys-284 catalyzed by MUL1, leading to its proteasomal degradation.

Acetylated on Lys-14 and Lys-20 by the histone acetyltransferases EP300 and KAT2B. Acetylation results in reduced phosphorylation and inhibition of activity. Deacetylated at Lys-14 and Lys-20 by SIRT1. SIRT1-mediated deacetylation relieves the inhibition. [UniProt]



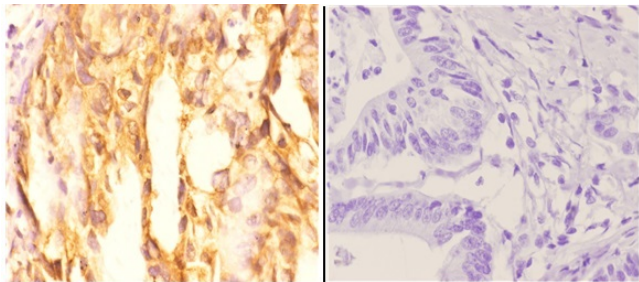
ARG56419 anti-Akt 1 antibody IHC-P image

Immunohistochemistry: Paraffin-embedded Human breast carcinoma tissue stained with ARG56419 anti-Akt 1 antibody at 1:50 dilution. Negative control (right) using PBS instead of primary antibody.



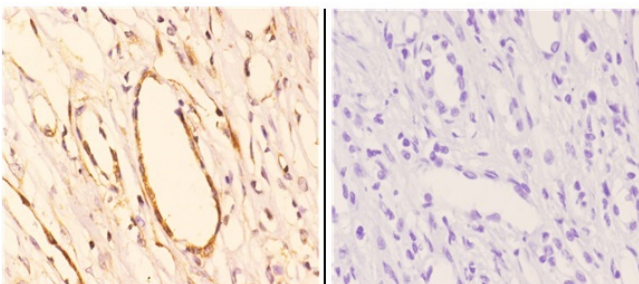
ARG56419 anti-Akt 1 antibody WB image

Western blot: 40 µg of 1) A549, 2) NIH-3T3, and 3) PC12 whole cell lysates stained with ARG56419 anti-Akt 1 antibody at 1:500 dilution.



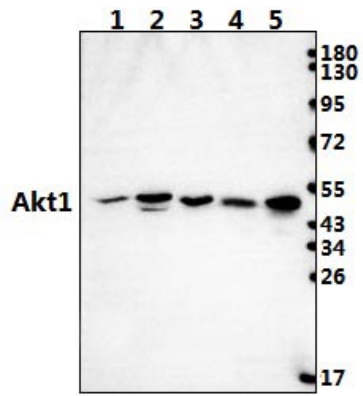
ARG56419 anti-Akt 1 antibody IHC-P image

Immunohistochemistry: Paraffin-embedded Human colon carcinoma tissue stained with ARG56419 anti-Akt 1 antibody at 1:50 dilution. Negative control (right) using PBS instead of primary antibody.



ARG56419 anti-Akt 1 antibody IHC-P image

Immunohistochemistry: Paraffin-embedded Human kidney carcinoma tissue stained with ARG56419 anti-Akt 1 antibody at 1:50 dilution. Negative control (right) using PBS instead of primary antibody.



#### ARG56419 anti-Akt 1 antibody WB image

Western blot: 40  $\mu$ g of 1) L02, 2) A549, 3) HEK293T, 4) C6, and 5) BV2 whole cell lysates stained with ARG56419 anti-Akt 1 antibody at 1:500 dilution.