

**Anti-AKT2 Picoband Antibody**  
Catalog # ABO11764**Specification****Anti-AKT2 Picoband Antibody - Product Information**

Application	IHC
Primary Accession	<a href="#">P31751</a>
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized

**Description**

Rabbit IgG polyclonal antibody for RAC-beta serine/threonine-protein kinase(AKT2) detection. Tested with WB, IHC-P, IHC-F in Human;Mouse;Rat.

**Reconstitution**

Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

**Anti-AKT2 Picoband Antibody - Additional Information**

**Gene ID** 208

**Other Names**

RAC-beta serine/threonine-protein kinase, 2.7.11.1, Protein kinase Akt-2, Protein kinase B beta, PKB beta, RAC-PK-beta, AKT2

**Calculated MW**

55769 MW KDa

**Application Details**

Immunohistochemistry(Frozen Section), 0.5-1 µg/ml, Mouse, Rat,  
-<br>Immunohistochemistry(Paraffin-embedded Section), 0.5-1 µg/ml, Human, By  
Heat<br>Western blot, 0.1-0.5 µg/ml, Human<br>

**Subcellular Localization**

Cytoplasm. Nucleus. Cell membrane; Peripheral membrane protein. Localizes within both nucleus and cytoplasm of proliferative primary myoblasts and mostly within the nucleus of differentiated primary myoblasts. By virtue of the N-terminal PH domain, is recruited to sites of the plasma membrane containing increased PI(3,4,5)P3 or PI(3,4)P2, cell membrane targeting is also facilitated by interaction with CLIP3.

**Tissue Specificity**

Expressed in all cell types so far analyzed.

**Protein Name**

RAC-beta serine/threonine-protein kinase

**Contents**

Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na<sub>2</sub>HPO<sub>4</sub>, 0.05mg Na<sub>3</sub>.

### Immunogen

A synthetic peptide corresponding to a sequence at the C-terminus of human AKT2(454-481aa DRYDSLGLLELDQRTHFPQFSYSASIRE), different from the related mouse sequence by two amino acids, and from the related rat sequence by one amino acid.

### Purification

Immunogen affinity purified.

### Cross Reactivity

No cross reactivity with other proteins

### Storage

**At -20°C for one year. After r°Constitution, at 4°C for one month. It°Can also be aliquotted and stored frozen at -20°C for a longer time.Avoid repeated freezing and thawing.**

### Sequence Similarities

Belongs to the protein kinase superfamily. AGC Ser/Thr protein kinase family. RAC subfamily.

## Anti-AKT2 Picoband Antibody - Protein Information

Name AKT2 ([HGNC:392](#))

### Function

Serine/threonine kinase closely related to AKT1 and AKT3. All 3 enzymes, AKT1, AKT2 and AKT3, are collectively known as AKT kinase. AKT regulates many processes including metabolism, proliferation, cell survival, growth and angiogenesis, through the phosphorylation of a range of downstream substrates. Over 100 substrates have been reported so far, although for most of them, the precise AKT kinase catalyzing the reaction was not specified. AKT regulates glucose uptake by mediating insulin-induced translocation of the SLC2A4/GLUT4 glucose transporter to the cell surface. Phosphorylation of PTPN1 at 'Ser-50' negatively modulates its phosphatase activity preventing dephosphorylation of the insulin receptor and the attenuation of insulin signaling. Phosphorylation of TBC1D4 triggers the binding of this effector to inhibitory 14-3-3 proteins, which is required for insulin-stimulated glucose transport. AKT also regulates the storage of glucose in the form of glycogen by phosphorylating GSK3A at 'Ser-21' and GSK3B at 'Ser-9', resulting in inhibition of its kinase activity. Phosphorylation of GSK3 isoforms by AKT is also thought to be one mechanism by which cell proliferation is driven. AKT regulates also cell survival via the phosphorylation of MAP3K5 (apoptosis signal- related kinase). Phosphorylation of 'Ser-83' decreases MAP3K5 kinase activity stimulated by oxidative stress and thereby prevents apoptosis. AKT 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. AKT is involved in the phosphorylation of members of the FOXO factors (Forkhead family of transcription factors), leading to binding of 14-3-3 proteins and cytoplasmic localization. In particular, FOXO1 is phosphorylated at 'Thr-24', 'Ser-256' and 'Ser-319'. FOXO3 and FOXO4 are phosphorylated on equivalent sites. AKT has an important role in the regulation of NF-kappa-B-dependent gene transcription and positively regulates the activity of CREB1 (cyclic AMP (cAMP)-response element binding protein). The phosphorylation of CREB1 induces the binding of accessory proteins that are necessary for the transcription of pro-survival genes such as BCL2 and MCL1. AKT phosphorylates 'Ser- 454' on ATP citrate lyase (ACLY), thereby potentially regulating ACLY activity and fatty acid synthesis. Activates the 3B isoform of cyclic nucleotide phosphodiesterase (PDE3B) via phosphorylation of 'Ser-273', resulting in reduced cyclic AMP levels and inhibition of lipolysis. Phosphorylates PIKFYVE on 'Ser-318', which results in increased PI(3)P- 5 activity. The Rho GTPase-activating protein DLC1 is another substrate and its phosphorylation is implicated in the regulation cell proliferation and cell growth. AKT plays a role as 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. 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 1 (IGF1). AKT mediates the antiapoptotic effects of IGF1. Essential for the SPATA13-mediated regulation of cell migration and adhesion assembly and disassembly. May be involved in the regulation of the placental development (PubMed:<a href="http://www.uniprot.org/citations/21432781" target="\_blank">21432781</a>, PubMed:<a href="http://www.uniprot.org/citations/21620960" target="\_blank">21620960</a>). In response to lysophosphatidic acid stimulation, inhibits the ciliogenesis cascade. In this context, phosphorylates WDR44, hence stabilizing its interaction with Rab11 and preventing the formation of the ciliogenic Rab11-FIP3-RAB3IP complex. Also phosphorylates RAB3IP/Rabin8, thus may affect RAB3IP guanine nucleotide exchange factor (GEF) activity toward Rab8, which is important for cilia growth (PubMed:<a href="http://www.uniprot.org/citations/31204173" target="\_blank">31204173</a>). Phosphorylates PKP1, facilitating its interaction with YWHAG and translocation to the nucleus, ultimately resulting in a reduction in keratinocyte intercellular adhesion (By similarity). Phosphorylation of PKP1 increases PKP1 protein stability, translocation to the cytoplasm away from desmosome plaques and PKP1-driven cap-dependent translation (PubMed:<a href="http://www.uniprot.org/citations/23444369" target="\_blank">23444369</a>).

#### Cellular Location

Cytoplasm. Nucleus Cell membrane; Peripheral membrane protein. Early endosome {ECO:0000250|UniProtKB:Q60823}. Note=Through binding of the N-terminal PH domain to phosphatidylinositol (3,4,5)-trisphosphate (PtdIns(3,4,5)P3) or phosphatidylinositol (3,4)-bisphosphate (PtdIns(3,4)P2), recruited to the plasma membrane. Cell membrane recruitment is facilitated by interaction with CLIP3. Colocalizes with WDFY2 in early endosomes (By similarity). Localizes within both nucleus and cytoplasm in proliferative primary myoblasts and mostly within the nucleus of differentiated primary myoblasts (PubMed:17565718) {ECO:0000250|UniProtKB:Q60823, ECO:0000269|PubMed:17565718}

#### Tissue Location

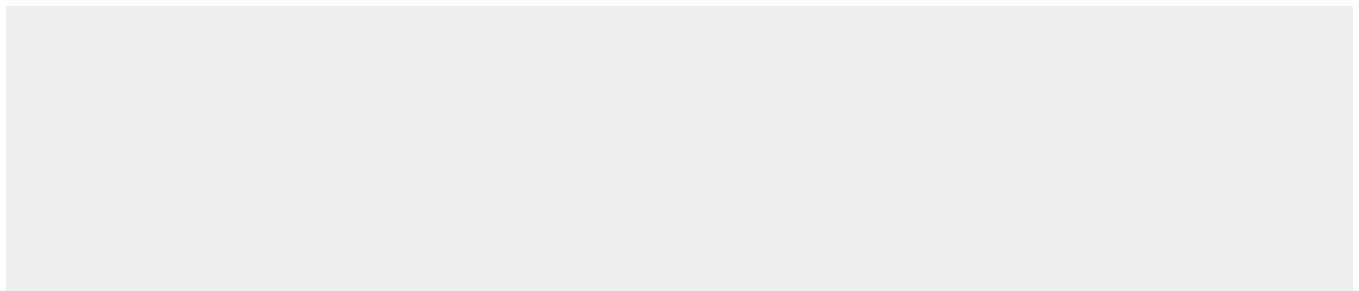
Widely expressed. Expressed in myoblasts (PubMed:17565718).

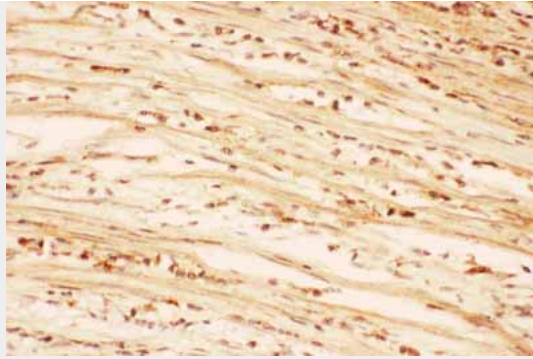
### Anti-AKT2 Picoband Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

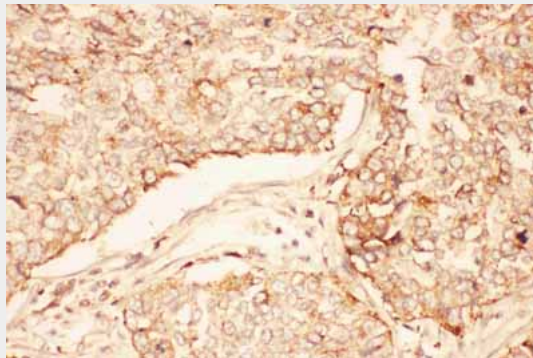
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### Anti-AKT2 Picoband Antibody - Images

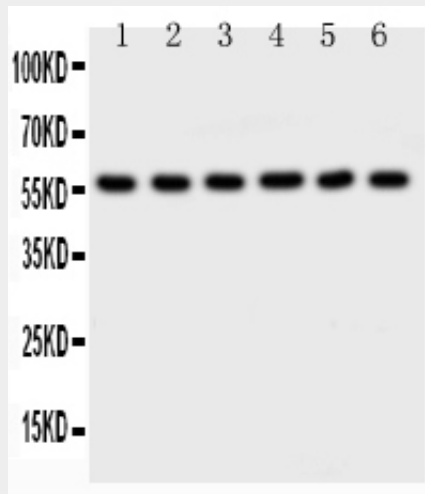




Anti-AKT2 Picoband antibody, ABO11764-1.JPGIHC(P): Human Intestinal Cancer Tissue



Anti-AKT2 Picoband antibody, ABO11764-2.JPGIHC(P): Human Lung Cancer Tissue



Anti-AKT2 Picoband antibody, ABO11764-3.jpg All lanes: Anti-AKT2 (ABO11764) at 0.5ug/ml  
 Lane 1: HELA Whole Cell Lysate at 40ug  
 Lane 2: PANC Whole Cell Lysate at 40ug  
 Lane 3: A549 Whole Cell Lysate at 40ug  
 Lane 4: COLO320 Whole Cell Lysate at 40ug  
 Lane 5: HT1080 Whole Cell Lysate at 40ug  
 Lane 6: MCF-7 Whole Cell Lysate at 40ug  
 Predicted bind size: 56KD  
 Observed bind size: 56KD

### Anti-AKT2 Picoband Antibody - Background

AKT2 is a putative oncogene encoding a protein belonging to a subfamily of serine/threonine kinases containing SH2-like (Src homology 2-like) domains. This gene is mapped to 19q13.2. AKT2 is one of 3 closely related serine/threonine-protein kinases (AKT1, AKT2 and AKT3) called the AKT kinase, and which regulate many processes including metabolism, proliferation, cell survival, growth and angiogenesis. AKT2 seems also to be the principal isoform responsible of the regulation of glucose uptake. AKT2 is also specifically involved in skeletal muscle differentiation, one of its substrates in this process being ANKRD2. Overexpression of AKT2 contributes to the malignant

phenotype of a subset of human ductal pancreatic cancers.