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Anti-AKT2 (RABBIT) Antibody

AKT2 Antibody
Catalog # ASR5222

Specification

Anti-AKT2 (RABBIT) Antibody - Product Information

Host	**Rabbit**
Conjugate	**Unconjugated**
Target Species	**Human**
Reactivity	**Human, Mouse**
Clonality	**Polyclonal**
Application	**WB, E, I, LCI**
Application Note	**This antibody was tested by ELISA and immunoblotting and was found to be reactive with both unphosphorylated and phosphorylated AKT2 in a lysate of HEK293 cells. Although not tested, this antibody is likely functional in immunohistochemistry and immunoprecipitation. This product has been assayed by immunoblot against a HEK293 cell lysate and is reactive at a 1:1,000 dilution showing a band at approximately 60 kDa. A working dilution of 1:4,000 to 1:16,000 is suggested for this product in a standard capture ELISA using TMB (3,3',5,5'-Tetramethylbenizidine) code # TMBE-100 as a substrate for 30 minutes at room temperature against 0.1 ug of the immunizing peptide. Researchers should determine optimal titers for other applications.**
Physical State	**Liquid (sterile filtered)**
Buffer	**0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2**
Immunogen	**This affinity purified antibody was prepared from whole rabbit serum produced by repeated immunizations with a synthetic peptide corresponding to C-Terminal region near aa 450-475 (of 481) of human AKT2 conjugated to Keyhole Limpet Hemocyanin (KLH).**
Preservative	**0.01% (w/v) Sodium Azide**

Anti-AKT2 (RABBIT) Antibody - Additional Information

Gene ID 208

Other Names
164731

Purity
This affinity purified antibody is directed against human AKT2. The antibody detects both unphosphorylated and phosphorylated forms of the protein. The product was affinity purified from monospecific antiserum by immunoaffinity purification. Cross reactivity with AKT2 from other species has not been determined, however, the sequence of the immunogen shows 85% identity to mouse and 92% identity with rat, therefore, cross reactivity is expected.

Storage Condition
Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.

Precautions Note
This product is for research use only and is not intended for therapeutic or diagnostic applications.

Anti-AKT2 (RABBIT) 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:21432781, PubMed:21620960). 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:31204173). 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:23444369).

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 (RABBIT) 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 Cytomety
- Cell Culture

Anti-AKT2 (RABBIT) Antibody - Images

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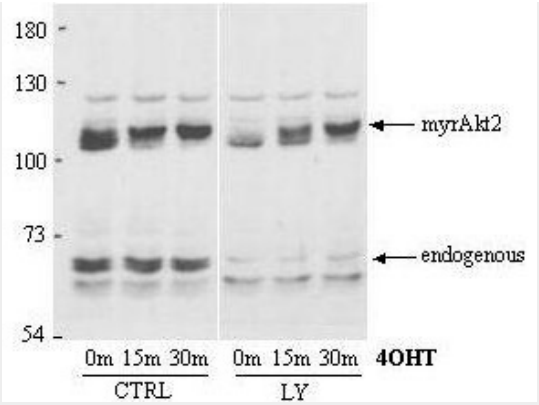

Western Blot of Rabbit Anti-AKT2 antibody. Load: 20mg/lane. Lane 1: HEK293 lysate [Control]. Lane 2: HEK293 lysate + 15 min 4OHT (tamoxifen). Lane 3: HEK293 lysate + 30 min 4OHT (tamoxifen). Lane 4: HEK293 lysate pretreated for 15min with 25uM LY294002. Lane 5: HEK293 lysate + 15 min 4OHT (tamoxifen) lysate pretreated for 15min with 25uM LY294002. Lane 6: HEK293 lysate + 30 min 4OHT (tamoxifen) lysate pretreated for 15min with 25uM LY294002. Primary antibody: Anti-AKT2 Antibody at 1:1000 for 1h at room temperature. Secondary antibody: IRDye800™ rabbit secondary antibody at 1:10,000 for 45 min at RT. Block: 5% BLOTTO overnight at 4°C. Observed size: Endogenous Akt2 ~60kDa, myristoylated construct ~110kDa. Other band(s): This treatment has no effect on endogenous Akt2, but causes a band shift upwards in the MyrAkt2.

Anti-AKT2 (RABBIT) Antibody - Background

AKT2 is also known as V-AKT Murine Thymoma Viral Oncogene Homolog 2 antibody, Rac protein kinase beta antibody, PKB beta antibody or PRKBB antibody. AKT2 is an isoform of the phosphoinositide-dependent serine-threonine protein kinase AKT and is enriched in insulin-responsive tissues and has been implicated in the metabolic actions of the hormone. AKT2 is a putative oncogene encoding a protein belonging to a subfamily of serine/threonine kinases containing SH2-like (Src homology 2-like) domains. Furthermore, AKT2 was shown to be amplified and overexpressed in 2 of 8 ovarian carcinoma cell lines and 2 of 15 primary ovarian tumors. Over-expression of AKT2 contributes to the malignant phenotype of a subset of human ductal pancreatic cancers. AKT2 is a general protein kinase capable of phosphorylating several known proteins. AKT2 mediates many of the downstream events of PI 3-kinase (a lipid kinase activated by growth factors, cytokines and insulin). PI 3-kinase recruits AKT2 to the membrane, where it is activated by PDK1 phosphorylation. Once phosphorylated, AKT2 dissociates from the membrane and phosphorylates targets in the cytoplasm and the cell nucleus. AKT2 has two main roles: (i) inhibition of apoptosis; (ii) promotion of proliferation.