


## Product datasheet

# Anti-AKT1 antibody ab59380

[5 Images](#)

### Overview

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|                            |   |
|----------------------------|---|
| <b>Product name</b>        | Anti-AKT1 antibody  |
| <b>Description</b>         | Rabbit polyclonal to AKT1   |
| <b>Host species</b>        | Rabbit  |
| <b>Specificity</b>         | This antibody detects endogenous levels of total AKT1 protein.  |
| <b>Tested applications</b> | <b>Suitable for:</b> WB, IHC-P, ICC/IF  |
| <b>Species reactivity</b>  | <b>Reacts with:</b> Mouse, Human<br><b>Predicted to work with:</b> Rat   |
| <b>Immunogen</b>           | Synthetic peptide corresponding to Human AKT1 aa 292-341. Synthesized non-phosphopeptide derived from human AKT1 around the phosphorylation site of tyrosine 326.<br>Database link: <a href="#">P31749</a>  |
| <b>Positive control</b>    | WB: HeLa cells, treated with Insulin 0.01U/ml for 15 minutes; Cos-7, HepG2 cells. IHC-P: Human brain tissue. ICC: HeLa cells.   |
| <b>General notes</b>       | <p>Reproducibility is key to advancing scientific discovery and accelerating scientists' next breakthrough.</p> <p>Abcam is leading the way with our range of recombinant antibodies, knockout-validated antibodies and knockout cell lines, all of which support improved reproducibility.</p> <p>We are also planning to innovate the way in which we present recommended applications and species on our product datasheets, so that only applications &amp; species that have been tested in our own labs, our suppliers or by selected trusted collaborators are covered by our Abpromise™ guarantee.</p> <p>In preparation for this, we have started to update the applications &amp; species that this product is Abpromise guaranteed for.</p> <p>We are also updating the applications &amp; species that this product has been “predicted to work with,” however this information is not covered by our Abpromise guarantee.</p> <p>Applications &amp; species from publications and Abreviews that have not been tested in our own labs or in those of our suppliers are not covered by the Abpromise guarantee.</p> <p>Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, as well as customer reviews and Q&amp;As.</p> |

## Properties

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|                             |  |
|-----------------------------|--|
| <b>Form</b>                 | Liquid   |
| <b>Storage instructions</b> | Shipped at 4°C. Upon delivery aliquot and store at -20°C. Avoid freeze / thaw cycles.  |
| <b>Storage buffer</b>       | pH: 7.40<br>Preservative: 0.02% Sodium azide<br>Constituents: PBS, 50% Glycerol (glycerin, glycerine), 0.87% Sodium chloride |
| <b>Purity</b>               | Immunogen affinity purified  |
| <b>Purification notes</b>   | The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific immunogen.        |
| <b>Clonality</b>            | Polyclonal   |
| <b>Isotype</b>              | IgG  |

## Applications

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Our [Abpromise guarantee](#) covers the use of **ab59380** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

| Application | Abreviews | Notes  |
|-------------|-----------|--|
| WB          |           | 1/500 - 1/1000. Detects a band of approximately 75 kDa (predicted molecular weight: 56 kDa). |
| IHC-P       |           | 1/50 - 1/100.  |
| ICC/IF      |           | 1/100 - 1/500.   |

## Target

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|                               |  |
|-------------------------------|--|
| <b>Function</b>               | 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. |
| <b>Tissue specificity</b>     | Expressed in all human cell types so far analyzed. The Tyr-176 phosphorylated form shows a significant increase in expression in breast cancers during the progressive stages i.e. normal to hyperplasia (ADH), ductal carcinoma in situ (DCIS), invasive ductal carcinoma (IDC) and lymph node metastatic (LNMM) stages.  |
| <b>Involvement in disease</b> | Defects in AKT1 are a cause of susceptibility to breast cancer (BC) [MIM:114480]. A common   |

malignancy originating from breast epithelial tissue. Breast neoplasms can be distinguished by their histologic pattern. Invasive ductal carcinoma is by far the most common type. Breast cancer is etiologically and genetically heterogeneous. Important genetic factors have been indicated by familial occurrence and bilateral involvement. Mutations at more than one locus can be involved in different families or even in the same case.

Defects in AKT1 are associated with colorectal cancer (CRC) [MIM:114500].

Defects in AKT1 are associated with susceptibility to ovarian cancer [MIM:604370]; also called susceptibility to familial breast-ovarian cancer type 1 (BROVCA1).

### Sequence similarities

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

Contains 1 AGC-kinase C-terminal domain.

Contains 1 PH domain.

Contains 1 protein kinase domain.

### Domain

Binding of the PH domain to the phosphatidylinositol 3-kinase alpha (PI(3)K) results in its targeting to the plasma membrane. The PH domain mediates interaction with TNK2 and Tyr-176 is also essential for this interaction.

The AGC-kinase C-terminal mediates interaction with THEM4.

### Post-translational modifications

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. 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. 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.

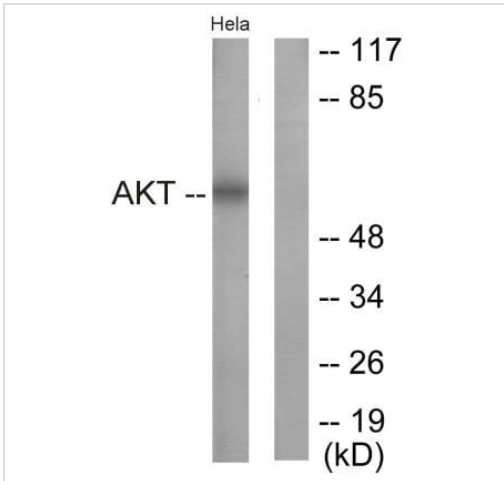
### Cellular localization

Cytoplasm. Nucleus. Cell membrane. Nucleus after activation by integrin-linked protein kinase 1 (ILK1). Nuclear translocation is enhanced by interaction with TCL1A. Phosphorylation on Tyr-176 by TNK2 results in its localization to the cell membrane where it is targeted for further phosphorylations on Thr-308 and Ser-473 leading to its activation and the activated form translocates to the nucleus.

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### Images

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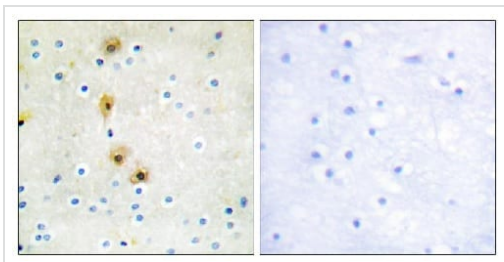
Western blot - Anti-AKT1 antibody (ab59380)

**All lanes** : Anti-AKT1 antibody (ab59380) at 1/500 dilution

**Lane 1** : HeLa cells, treated with Insulin 0.01U/ml for 15 minutes

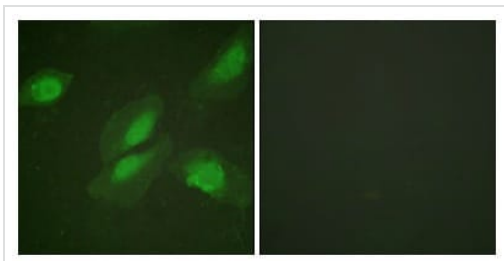
**Lane 2** : synthesized peptide

**Predicted band size:** 56 kDa



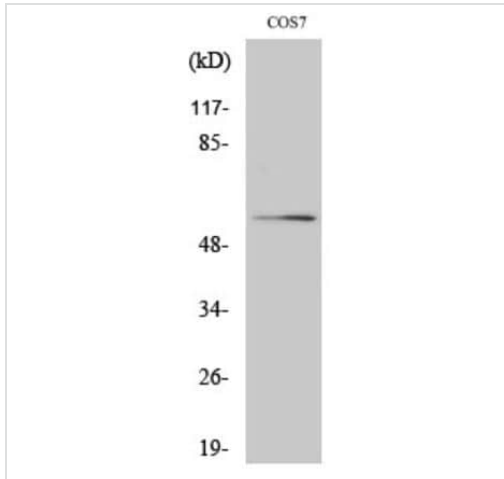
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-AKT1 antibody (ab59380)

Immunohistochemistry analysis of paraffin-embedded human brain tissue, using ab59380 at 1/50 dilution. The picture on the right is blocked with the synthesized peptide



Immunocytochemistry/ Immunofluorescence - Anti-AKT1 antibody (ab59380)

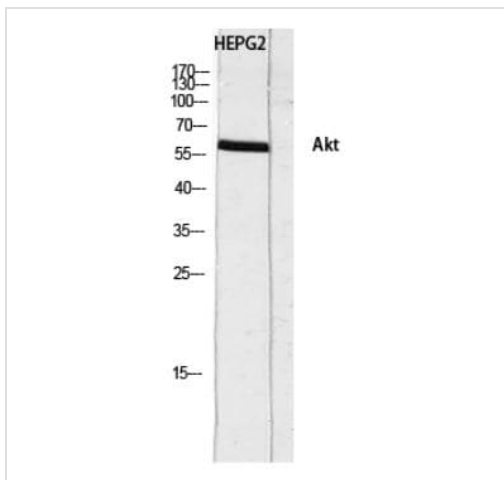
Immunofluorescence analysis of HeLa cells, using ab59380 at 1/100 dilution. The picture on the right is blocked with the synthesized peptide.



Western blot - Anti-AKT1 antibody (ab59380)

Anti-AKT1 antibody (ab59380) at 1/1000 dilution + Cos-7 cells

**Predicted band size:** 56 kDa



Western blot - Anti-AKT1 antibody (ab59380)

Anti-AKT1 antibody (ab59380) at 1/1000 dilution + HepG2 cells

**Predicted band size:** 56 kDa

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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