

Product datasheet

Human AKT1 Matched Antibody Pair Kit ab219528

Recombinant

2 Images

Overview

Product name	Human AKT1 Matched Antibody Pair Kit
Detection method	Colorimetric
Assay type	ELISA set
Sensitivity	64 pg/ml
Range	250 pg/ml - 16000 pg/ml
Species reactivity	Reacts with: Human
Product overview	<p>Human AKT1 Matched Antibody Pair Kits include a capture and a biotinylated detector antibody pair, along with a calibrated protein standard, suitable for sandwich ELISA. The Matched Antibody Pair Kit can be used to quantify native and recombinant human AKT1.</p> <p>Optimization of the kit reagents to sample type, immunoassay format or instrumentation may be required. Guidelines for use of this kit in a standard 96-well microplate sandwich ELISA using HRP/TMB system of colorimetric detection is described in this assay procedure for the purposes of quantification.</p> <p>Protocol information and tips on the use of the Matched Antibody Pair kits for sandwich ELISA can be found on our website. An accessory pack can be purchased which includes buffer reagents required to perform 10 x 96-well plate sandwich ELISAs (ab210905).</p> <p>For additional information on the performance of the antibody pair used in this kit, please see our equivalent SimpleStep ELISA kit ab214023. Please note that while the antibody pair is the same provided in the corresponding SimpleStep ELISA Kit, due to differences in their formulation, this antibody pair cannot be used with the consumables provided with our SimpleStep ELISA Kits.</p>
Tested applications	Suitable for: ELISA
Platform	Reagents

Properties

Storage instructions Store at -20°C. Please refer to protocols.

Components	5 x 96 tests
Human AKT1 Capture Antibody	1 x 50µg
Human AKT1 Detector Antibody	1 x 12.5µg
Human AKT1 Lyophilized Protein	1 vial

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.
Tissue specificity	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.
Involvement in disease	<p>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.</p> <p>Defects in AKT1 are associated with colorectal cancer (CRC) [MIM:114500].</p> <p>Defects in AKT1 are associated with susceptibility to ovarian cancer [MIM:604370]; also called susceptibility to familial breast-ovarian cancer type 1 (BROVCA1).</p>
Sequence similarities	<p>Belongs to the protein kinase superfamily. AGC Ser/Thr protein kinase family. RAC subfamily. Contains 1 AGC-kinase C-terminal domain.</p> <p>Contains 1 PH domain.</p> <p>Contains 1 protein kinase domain.</p>
Domain	<p>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.</p> <p>The AGC-kinase C-terminal mediates interaction with THEM4.</p>
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.

Applications

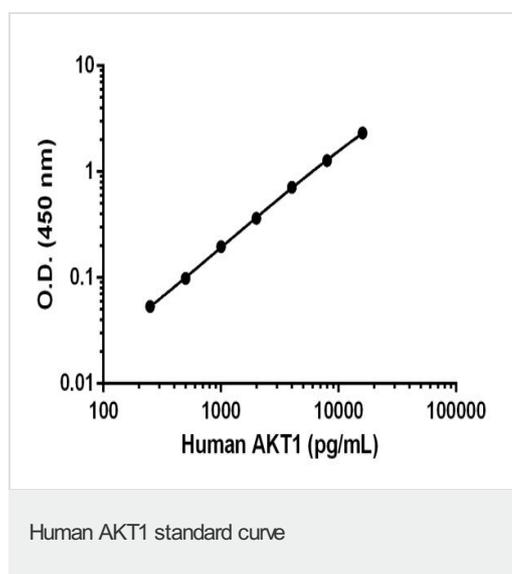
The Abpromise guarantee

Our [Abpromise guarantee](#) covers the use of ab219528 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
ELISA		Use at an assay dependent concentration.

Images



Standard calibration curve. Background subtracted values are graphed.

Powered by
recombinant antibodies



Research with confidence
Consistent and reproducible results



Long-term and scalable supply
Recombinant technology



Success from the first experiment
Confirmed specificity



Ethical standards compliant
Animal-free production

Sandwich ELISA - Human AKT1 Matched Antibody
Pair Kit (ab219528)

To learn more about the advantages of recombinant antibodies see [here](#).

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

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