

## AKT (Akt1, Akt2 and Akt3)/PKB & CTMP Antibodies

Putative human homologs of the protooncogene v-akt of the acutely transforming retrovirus AKT8 have been cloned. These protein-serine/threonine kinase proteins have a catalytic domain closely related to both PKA and PKC and have been designated **rac** (related to **A** and **C** kinases), **pkb** (**Protein kinase B**) or **Akt**.

RAC protein kinase family members feature pleckstrin homology (PH) domain at the amino terminus and a protein-serine/threonine kinase catalytic domain at the carboxy terminus. The Amino terminal domain (referred to as AH-Akt Homology domain) spans from 1-148 amino acids and contains the PH domain, a region found in diverse group of signaling proteins. The PH domain (amino acids 1-106) has been implicated in interactions with other proteins such as G-protein  $\beta\gamma$  subunits, as well as phosphoinositides. The kinase domain is located between residues 148 to 411. These enzymes are activated by diverse ligands such as PGDF, EGF and basic FG in NIH 3T3, Rat-1 or Swiss-3T3 cells.

**AKT1** (RAC-PK- $\alpha$  or PKB- $\alpha$ ) is the human homolog of v-akt and is identical to RAC gene. The protein has been observed to show different migratory patterns on a western blot according to the state of phosphorylation of the protein. Phosphatase treatment has been shown to result in inactivation of the protein.

**AKT2** (RAC-PK- $\beta$ ) has been shown to be amplified and over-expressed in some human carcinoma cell lines and primary tumors suggesting that it may contribute to the development of common epithelial tumors of the ovary. It has been reported that

anti-sense AKT2 can greatly inhibit the expression of AKT2 protein and suppress the tumorigenic phenotype of PANC1 cells inoculated s.c. in nude mice. This effect was restricted to cells that over-express AKT2. It is postulated that over-expression of AKT2 could upregulate the mediation of growth signals that may contribute to cell proliferation.

**AKT3** or Protein Kinase gamma (RAC-PK- $\gamma$ ) is highly related to other members of RAC protein kinase family. It is abundantly expressed in testes and brain and is involved in regulation of cellular growth. Studies to date suggest that Pleckstrin homology domains of RAC protein kinase family could associate with more than one protein for regulation of activity or distribution of this enzyme family by different ways.

Protein kinase B (PKB) is a major downstream target of receptor tyrosine kinases that signal via phosphatidylinositol 3-kinase (PIK3). Upon cell stimulation, PKB is translocated to the plasma membrane, where it is **phosphorylated on thr308** in the catalytic domain and **ser473** in the C-terminal regulatory domain. Several protein partners for PKB have been identified. **CTMP, a carboxyl terminal modulator protein**, binds to PKB and negatively regulates PKB activity by inhibiting phosphorylation of these PKB residues. CTMP (mouse 248-aa, human 240-aa, chromosome 1q21, 22-26 kDa) predominantly expressed in skeletal muscle, testis, uterus, brain, and kidney, with lower levels in heart, liver, and lung. The presence of multiple transcripts suggested that CTMP undergoes alternative splicing.

**Antibody Ordering Information** ([http://4adi.com/commerce/catalog/spcategory.jsp?category\\_id=2499](http://4adi.com/commerce/catalog/spcategory.jsp?category_id=2499))

Most Product data sheets are posted at the website contact ADI for information.

Item	Peptide Antigen location	Antibody host	**expected Ab Cross reactivity	Antiserum Cat #	Affinity Pure IgG Cat #	Control peptide Cat #
<b>AKT1</b> (Ab # 2) S472-phosphoryl.	R, 15-aa ~ CT	rb	$\alpha$ forms in H, M, R, B; $\beta$ forms in H,R	AKT12-S	AKT12-A	AKT12-P
<b>AKT1</b> .	R, 15-aa ~ CT	non-phosphorylated Control/blocking peptide # 3 for ab#2 (Akt12) cat# <b>AKT13-P</b>				
<b>AKT1</b>	Recombinant Purified Human Akt-1/PKB-alpha protein (S472, phosphorylated)protein WB +ve control, Cat # <b>AKT12-C</b>					
<b>AKT1</b>	Recombinant Purified Human Akt-1/PKB-alpha protein (non-phosphorylated) protein WB +ve control, Cat # <b>AKT13-C</b>					
<b>AKT1</b>	R, 16-aa ~ CT	rb	H, M, R, B	AKT14-S	AKT14-A	AKT14-P
<b>AKT1</b>	Recombinant (Sf9) purified human AKT1(Akt-1/PKB-alpha/RAC-alpha) protein, active cat# AKT17-R-10					
<b>AKT1</b>	Recombinant (E.Coli) purified, human Protein Kinase Akt1/PKB alpha (PRKBA/PKB) protein, active Cat# <b>PAKT18-R-5</b>					
<b>AKT1</b>	Recombinant (Sf9) purified, human Protein Kinase Akt1/PKB alpha (PRKBA/PKB) protein, inactive cat# <b>PAKT19-R-5</b>					
<b>AKT2</b>	R, 16-aa ~ CT	rb	H, M, R	AKT21-S	AKT21-A	AKT21-P
<b>AKT2</b>	Recombinant purified, human Akt-2/PKB-beta protein control for WB, Cat # <b>AKT21-C</b>					
<b>AKT2</b>	Recombinant purified, human Akt-2/PKB-beta protein, active cat# <b>AKT25-R-10</b>					
<b>AKT3</b>	R, 12-a~ CT	rb	R	AKT31-S	AKT31-A	AKT31-P
<b>AKT3</b>	Recombinant purified, human Akt-3/PKB-gamma protein control for WB, Cat # <b>AKT31-C</b>					
<b>AKT3</b>	Recombinant purified, human Akt-3/PKB-gamma protein, active cat# <b>AKT35-R-5</b>					
<b>CTMP</b>	h, 17-a~ l	rb	M, H	CTMP11-S,CTMP12-S	CTMP11-A	CTMP11-P
<b>CTMP</b>	Recombinant purified Human Carboxyl Terminal Modulator Protein (CTMP) protein for Western blot, cat# <b>CTMP11-C</b>					
<b>PTEN</b>	H	rb	H		PTEN11-A	
<b>PTEN</b>	Recombinant purified Human PTEN-GST fusion Protein (full length, GST-tag) control for WB cat# <b>PTEN15-C</b>					
<b>PTEN</b>	Recombinant purified Human Phosphatase and tensin homolog (PTEN-GST) fusion Protein (full length, GST-tag) cat# <b>PTEN15-R-10, PTEN15-R-50</b>					

**Rb**=Rabbit; **Ch**=Chicken; **m**=mouse; **r**=rat; **h**=human; **b**=bovine; ~CT/NT=near C or N-terminus. \*Expected antibody cross reactivity information is based upon high (>70%) sequence conservation of antigenic/control peptides in various species. t does not necessarily mean that ab-crossreactivity has been experimentally verified. Significant antigenic similarity exist but antibody cross reactivity is questionable

**Control peptide** (#\*\*\*\*\*-P) is suitable for ELISA and Antibody neutralization to show antibody specificity in ELISA/Western/IHC etc. It is a small peptide of about 2-3 Kda and it cannot be used as protein to run on Western. **Protein controls**, if available, are listed as #\*\*\*\*\*-C. **Unpurified antiserum** (#\*\*\*\*\*-S) can be used for ELISA/Western but the **affinity purified antibodies** (#\*\*\*\*\*-A) will provide cleaner results in ELISA, Western, and IHC/IF.

Please consult the List of publication on the next page for the use of our antibodies



**List of Publication Using ADI AKT Antibodies\_130719**

This is a list of publications where ADI antibodies were referenced the peer reviewed journal. Cat# of the antibodies have been provided if given in the publication and what techniques the antibodies are were used (Western, IHC, IP etc). ADI may have some of the publication on file. If you have used our antibodies and not listed here, please contact ADI and perhaps get some discount on the purchase of the antibodies.

ADI Product Used	Authors	Year	Journal	Western	IHC	IP	Comments
AKT2 Ab #AKT21-A	Emamian ES	2004	Nature Genetics 36, 131 - 137	WB			akt1/3 from upstate
AKT2 Ab #AKT21-A	Fujita H	2010	Mol. Biol. Cell 21: 2721 - 2731.	WB			Functional Sites of Insulin
Ab#CTMP11-A/12-A	Chen C-S	2005	J. Biol. Chem. 2005; 280: 38879 - 38887	WB			U87MG human glioblastoma and PC-3 cancer cells

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