antibodies

# Datasheet for ABIN5709031 AKT2 Protein (AA 2-481) (His-SUMO Tag)





#### Overview

Quantity:	100 µg
Target:	AKT2
Protein Characteristics:	AA 2-481
Origin:	Human
Source:	Escherichia coli (E. coli)
Protein Type:	Recombinant
Purification tag / Conjugate:	This AKT2 protein is labelled with His-SUMO Tag.
Application:	SDS-PAGE (SDS)

### Product Details

Sequence:	NEVSVIKEGW LHKRGEYIKT WRPRYFLLKS DGSFIGYKER PEAPDQTLPP LNNFSVAECQ
	LMKTERPRPN TFVIRCLQWT TVIERTFHVD SPDEREEWMR AIQMVANSLK QRAPGEDPMD
	YKCGSPSDSS TTEEMEVAVS KARAKVTMND FDYLKLLGKG TFGKVILVRE KATGRYYAMK
	ILRKEVIIAK DEVAHTVTES RVLQNTRHPF LTALKYAFQT HDRLCFVMEY ANGGELFFHL
	SRERVFTEER ARFYGAEIVS ALEYLHSRDV VYRDIKLENL MLDKDGHIKI TDFGLCKEGI
	SDGATMKTFC GTPEYLAPEV LEDNDYGRAV DWWGLGVVMY EMMCGRLPFY NQDHERLFEL
	ILMEEIRFPR TLSPEAKSLL AGLLKKDPKQ RLGGGPSDAK EVMEHRFFLS INWQDVVQKK
	LLPPFKPQVT SEVDTRYFDD EFTAQSITIT PPDRYDSLGL LELDQRTHFP QFSYSASIRE
Purification:	SDS-PAGE
Purity:	> 90 %

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Target:	AKT2
Alternative Name:	AKT2 (AKT2 Products)
Background:	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. This is mediated through serine and/or threonine
	phosphorylation of a range of downstream substrates. Over 100 substrate candidates have
	been reported so far, but for most of th, no isoform specificity has been reported. AKT is
	responsible of the regulation of 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 regulates also 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 mbers of the FOXO factors
	(Forkhead family of transcription factors), leading to binding of 14-3-3 proteins and cytoplasmic
	localization. In particular, FOX01 is phosphorylated at 'Thr-24', 'Ser-256' and 'Ser-319'. FOX03
	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 elent 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 PI3P-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 tpo 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 (PI3K) 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). AKT
	mediates the antiapoptotic effects of IGF-I. Essential for the SPATA13-mediated regulation of
	cell migration and adhesion assbly and disassbly. May be involved in the regulation of the
	placental development. One of the few specific substrates of AKT2 identified recently is PITX2.
	Phosphorylation of PITX2 impairs its association with the CCND1 mRNA-stabilizing complex
	thus shortening the half-life of CCND1. AKT2 ses also to be the principal isoform responsible of
	the regulation of glucose uptake. Phosphorylates C2CD5 on 'Ser-197' during insulin-stimulated
	adipocytes. AKT2 is also specifically involved in skeletal muscle differentiation, one of its
	substrates in this process being ANKRD2. Down-regulation by RNA interference reduces the
	expression of the phosphorylated form of BAD, resulting in the induction of caspase-dependent
	apoptosis. Phosphorylates CLK2 on 'Thr-343'.
Molecular Weight:	71.6 kDa
UniProt:	P31751
Pathways:	PI3K-Akt Signaling, RTK Signaling, AMPK Signaling, TLR Signaling, Cellular Glucan Metabolic
	Process, Regulation of Carbohydrate Metabolic Process, Hepatitis C, VEGF Signaling

# Application Details

Application Notes:	Optimal working dilution should be determined by the investigator.
Restrictions:	For Research Use only

## Handling

Format:	Liquid
Concentration:	0.1-2 mg/mL
Buffer:	20 mM Tris-HCl based buffer, pH 8.0
Storage:	-80 °C,4 °C,-20 °C
Storage Comment:	Store at -20°C, for extended storage, conserve at -20°C or -80°C. Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.

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SDS-PAGE	

Image 1.

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