AKT1 Mouse Recombinant Protein

PRODUCT OVERVIEW

Product Name	AKT1, Recombinant Protein
Full Product Name	Recombinant Mouse AKT1 Protein (His Tag)
Product Gene Name	AKT1 recombinant protein
Product Synonym Names	AKT1 kinase; Akt; PKB; PKB alpha; Protein kinase B; Protein kinase B alpha; Proto-oncogene c-Akt; RAC-PK-alpha; RAC-alpha serine/threonine-protein kinase; Rac; Thymoma viral proto-oncogene
Sequence	Met1-Lys17 9
Host	E coli
Form/Format	Lyophilized from sterile PBS, pH 7.4. Normally 5%-8% trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization. Please refer to the specific buffer information in the printed manual.
Purity/Purification	>80% as determined by reducing SDS-PAGE.
Preparation and Storage	Generally, lyophilized proteins are stable for up to 12 months when stored at -20 to -80 degree C. Reconstituted protein solution can be stored at 4-8 degree C for 2-7 days. Aliquots of reconstituted samples are stable at < -20 degree C for 3 months.
Molecular Weight	55,707 Da
3D Structure	ModBase 3D Structure for P31750
Species	Mouse
Tag	N-His
Endotoxin	<10EU/mg of the protein as determined by the LAL method.
Reconstitution	It is recommended that sterile water be added to the vial to prepare a stock solution of 0.5mg/mL. Concentration is measured by UV-Vis.
Product Categories/Family for AKT1 recombinant protein	Proteins; Recombinant Proteins; Others
ISO Certification	Manufactured in an ISO 9001:2015 Certified Laboratory.
Related Product Information for AKT1 recombinant protein	v-akt murine thymoma viral oncogene homolog 1 (AKT1), or protein kinase B-alpha (PKB-ALPHA) is a serine-threonine protein kinase, belonging to the Protein Kinase Superfamily. AKT1 is a major mediator of the responses to insulin, insulin-like growth factor 1 (IGF1), and glucose. AKT1 also plays a key role in the regulation of both muscle cell hypertrophy and atrophy. AKT1 activity is required for physiologic cardiac growth in response to IGF1 stimulation or exercise training. In contrast, AKT1 activity was found to antagonize pathologic cardiac growth that occurs in response to endothelin 1 stimulation or pressure overload. AKT1 selectively promotes physiological cardiac growth while AKT2 selectively promotes insulin-stimulated cardiac glucose metabolism. AKT1 deletion prevented tumor initiation as well as tumor progression, coincident with decreased Akt signaling in tumor tissues. AKT1 is the primary Akt isoform activated by mutant K-ras in lung tumors, and that AKT3 may oppose AKT1 in lung tumorigenesis and lung tumor progression. A number of separate studies have implicated AKT1 as an inhibitor of breast epithelial cell motility and invasion. AKT1 may have a dual role in tumorigenesis, acting not only pro-oncogenically by suppressing apoptosis but also anti-oncogenically by suppressing invasion and metastasis.
Other Notes	Small volumes of AKT1 recombinant protein vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.

Searchable Terms for AKT1 purchase	MBS2580817 is a recombinant protein targeting AKT1. Also known as Recombinant Mouse AKT1 Protein (His Tag). Host: E coli.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for AKT1. It may not necessarily be applicable to this product.

NCBI GI #	260166608
NCBI GeneID	11651
NCBI Accession #	NP_001159366.1
UniProt Primary Accession #	P31750
UniProt Secondary Accession #	Q62274; Q6GSA6
UniProt Related Accession #	P31750
GenBank Nucleotide #	NM_001165894.1
NCBI Official Full Name	RAC-alpha serine/threonine-protein kinase isoform 2
NCBI Official Synonym Full Names	thymoma viral proto-oncogene 1
NCBI Official Symbol	Akt1
NCBI Official Synonym Symbols	Akt; PKB; Rac; LTR-akt; PKB/Akt; PKBalpha
UniProt Protein Name	RAC-alpha serine/threonine-protein kinase
UniProt Synonym Protein Names	AKT1 kinase; Protein kinase B; PKB; Protein kinase B alpha; PKB alpha; Proto-oncogene c-Akt; RAC-PK-alpha; Thymoma viral proto-oncogene
Protein Family	Potassium channel
UniProt Gene Name	Akt1
UniProt Synonym Gene Names	Akt; Rac; PKB; PKB alpha
NCBI Protein Information	RAC-alpha serine/threonine-protein kinase
NCBI Summary for AKT1	This gene encodes the founding member of the Akt serine-threonine protein kinase gene family that also includes Akt2 and Akt3. This kinase is a major downstream effector of the phosphatidylinositol 3-kinase (PI3K) pathway that mediates 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). It is activated through recruitment to cellular membranes by PI3K lipid products and by phosphorylation by 3-phosphoinositide dependent kinase-1. It then further phosphorylates different downstream proteins in response to various extracellular signals and thus plays a pivotal role in mediating a variety of cellular processes, such as glucose metabolism, glycogen biosynthesis, protein synthesis and turn over, inflammatory response, cell survival (anti-apoptosis) and development. Alternatively spliced transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Sep 2009]

UniProt Comments for AKT1	Akt1: an oncogenic AGC kinase that plays a critical role in regulating cell survival and metabolism in many different signaling pathways. Dual phosphorylation is required for its activation. T308 is phosphorylated by PDK1 in the PI3 kinase pathway, and S473 is phosphorylated by mTOR in the mTORC2 pathway. The 'Lys-63'-linked ubiquitination of AKT1 by TRAF6 is important for its translocation to the plasma membrane, phosphorylation, and activation. When Akt is fully phosphorylated it translocates into the nucleus, undergoes 'Lys-48'-polyubiquitination catalyzed by TTC3, leading to its proteosomal degradation. Hyperactive or overexpressed in a number of cancers including breast, prostate, lung, pancreatic, liver, ovarian and colorectal. Over 160 protein substrates are known including many that regulate transcription, metabolism, apoptosis, cell cycle, and growth. Protein type: AGC group; AKT family; EC 2.7.11.1; Kinase, protein; Oncoprotein; Protein kinase, AGC; Protein kinase, Ser/Thr (non-receptor) Chromosomal Location of Human Ortholog: 12 F1|12 61.2 cM Cellular Component: cytoplasm; cytosol; intercellular junction; microtubule cytoskeleton; mitochondrion; nucleus; plasma membrane; protein complex; spindle; vesicle Molecular Function: ATP binding; enzyme binding; GTPase activating protein binding; kinase activity; nitric-oxide synthase regulator activity; phosphatidylinositol-3,4,5-triphosphate binding; phosphatidylinositol-3,4-bisphosphate binding; protein binding; protein kinase activity; protein kinase binding; protein kinase C binding; protein phosphatase 2A binding; protein serine/threonine kinase activity; protein serine/threonine/tyrosine kinase activity Biological Process: activated T cell apoptosis; aging; anagen; apoptotic mitochondrial changes; cell projection organization and biogenesis; cellular response to insulin stimulus; cytoskeleton organization and biogenesis; G1/S-specific positive regulation of cyclin-dependent protein kinase activity; germ cell development; glucose homeostasis; glucose metabolic process; glucose transport; glycogen biosynthetic process; glycogen metabolic process; inflammatory response; insulin receptor signaling pathway; insulin-like growth factor receptor signaling pathway; lipopolysaccharide-mediated signaling pathway; maternal placenta development; myelin maintenance in the peripheral nervous system; negative regulation of apoptosis; negative regulation of autophagy; negative regulation of caspase activity; negative regulation of cell size; negative regulation of fatty acid beta-oxidation; negative regulation of JNK cascade; negative regulation of protein kinase activity; negative regulation of proteolysis; osteoblast differentiation; peptidyl-serine phosphorylation; peptidyl-threonine phosphorylation; phosphorylation; positive regulation of apoptosis; positive regulation of blood vessel endothelial cell migration; positive regulation of cell growth; positive regulation of cellular protein metabolic process; positive regulation of endodeoxyribonuclease activity; positive regulation of endothelial cell proliferation; positive regulation of fat cell differentiation; positive regulation of glucose import; positive regulation of glycogen biosynthetic process; positive regulation of lipid biosynthetic process; positive regulation of nitric oxide biosynthetic process; positive regulation of nitric-oxide synthase activity; positive regulation of organ growth; positive regulation of peptidyl-serine phosphorylation; positive regulation of proteasomal ubiquitin-dependent protein catabolic process; positive regulation of protein amino acid phosphorylation; positive regulation of smooth muscle cell proliferation; positive regulation of transcription factor activity; positive regulation of transcription from RNA polymerase II promoter; positive regulation of vasoconstriction; protein amino acid phosphorylation; protein catabolic process; protein import into nucleus, translocation; protein kinase B signaling cascade; protein ubiquitination; regulation of cell migration; regulation of glycogen biosynthetic process; regulation of myelination; regulation of protein localization; response to DNA damage stimulus; response to food; response to hormone stimulus; response to organic substance; signal transduction; spinal cord development; striated muscle cell differentiation; translation
Research Articles on AKT1	**1.** Ambient fine particulate matter-induced myocarditis is mediated by EGFR/Akt signaling and overexpression of NLRP3 and NLRP12.
Precautions	All of MyBioSource's Products are for scientific laboratory research purposes and are not for diagnostic, therapeutics, prophylactic or in vivo use. Through your purchase, you expressly represent and warrant to MyBioSource that you will properly test and use any Products purchased from MyBioSource in accordance with industry standards. MyBioSource and its authorized distributors reserve the right to refuse to process any order where we reasonably believe that the intended use will fall outside of our acceptable guidelines.
Disclaimer	While every efforts were made to ensure the accuracy of the information provided in this datasheet, MyBioSource will not be liable for any omissions or errors contained herein. MyBioSource reserves the right to make changes to this datasheet at any time without prior notice. It is the responsibility of the customer to report product performance issues to MyBioSource within 30 days of receipt of the product. Please visit our Terms & Conditions page for more information.

Product Note	Select online data sheet information is drawn from bioinformatics databases, occasionally resulting in ambiguous or non-relevant product information. It is the responsibility of the customer to review, verify, and evaluate the information to make sure it matches their requirements before purchasing the kit. Our ELISA Kit assays are dynamic research tools and sometimes they may be updated and improved. If the format of this assay is important to you then please request the current manual or contact our technical support team with a presales inquiry before placing an order. We will confirm the current details of the assay. We cannot guarantee the sample manual posted online is the most current manual, it is intended to serve as an example only. Please refer to the instructions For Use provided with the assay kit for precise details.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

MyBioSource | Tel: +1.858.633.0165 | Fax: +1.858.633.0166 | mybiosource.com/contact-us
Online datasheet: https://www.mybiosource.com/recombinant-protein/akt1/2580817