

Recombinant Full Length Human AKT1 Protein, C-Flag-tagged

Cat. No. AKT1-96HFL **Lot. No.** (See product label)

SPECIFICATION

Product Overview Recombinant Full Length Human AKT1 Protein, fused to Flag-tag at C-terminus, was expressed in Mammalian cells.

Species Human

Source Mammalian Cells

Description

This gene encodes one of the three members of the human AKT serine-threonine protein kinase family which are often referred to as protein kinase B alpha, beta, and gamma. These highly similar AKT proteins all have an N-terminal pleckstrin homology domain, a serine/threonine-specific kinase domain and a C-terminal regulatory domain. These proteins are phosphorylated by phosphoinositide 3-kinase (PI3K). AKT/PI3K forms a key component of many signalling pathways that involve the binding of membrane-bound ligands such as receptor tyrosine kinases, G-protein coupled receptors, and integrin-linked kinase. These AKT proteins therefore regulate a wide variety of cellular functions including cell proliferation, survival, metabolism, and angiogenesis in both normal and malignant cells. AKT proteins are recruited to the cell membrane by phosphatidylinositol 3,4,5-trisphosphate (PIP3) after phosphorylation of phosphatidylinositol 4,5-bisphosphate (PIP2) by PI3K. Subsequent phosphorylation of both threonine residue 308 and serine residue 473 is required for full activation of the AKT1 protein encoded by this gene. Phosphorylation of additional residues also occurs, for example, in response to insulin growth factor-1 and epidermal growth factor. Protein phosphatases act as negative regulators of AKT proteins by dephosphorylating AKT or PIP3. The PI3K/AKT signalling pathway is

 Tel: 1-631-559-9269 1-516-512-3133

 Email: info@creative-biomart.com  Fax: 1-631-938-8127

 45-1 Ramsey Road, Shirley, NY 11967, USA

crucial for tumor cell survival. Survival factors can suppress apoptosis in a transcription-independent manner by activating AKT1 which then phosphorylates and inactivates components of the apoptotic machinery. AKT proteins also participate in the mammalian target of rapamycin (mTOR) signalling pathway which controls the assembly of the eukaryotic translation initiation factor 4F (eIF4E) complex and this pathway, in addition to responding to extracellular signals from growth factors and cytokines, is dysregulated in many cancers. Mutations in this gene are associated with multiple types of cancer and excessive tissue growth including Proteus syndrome and Cowden syndrome 6, and breast, colorectal, and ovarian cancers. Multiple alternatively spliced transcript variants have been found for this gene.

Form 25 mM Tris HCl, pH 7.3, 100 mM glycine, 10% glycerol.

Molecular Mass 55.5 kDa

AA Sequence

MSDVAIVKEGWLHHRGEYIKTWRPRYFLLKNDGTFIGYKERPQDQDQREAPLNNFS
 VAQCQLMKTERPR PNTFIIRCLQWTTVIERTFHVETPEEREEWTTAIQTVADGLKKQ
 EEEEMDFRSGSPSDNSGAEEMEVSL AKPKHRVTMNEFEYLKLLGKGTFGKVLVKE
 KATGRYYAMKILKKEVIVAKDEVAHTLTENRVLQNSRH PFLTALKYSFQTHDRLCFV
 MEYANGGELFFHLSRERVFSEDRARFYGAEIVSALDYHSEKNVVYRDLK LENLML
 DKDGHKIDDFGLCKEIKDGATMKTFCGTPEYLAPEVLEDNDYGRAVDWWGLGVV
 MYEMMCG RLPFYNQDHEKLFELILMEEIRFPRTLGPPEAKSLLSGLLKKDPKQRLGG
 GSEDAKEIMQHRFFAGIVWQ HVYEKLSPPFPKQVTSETDTRYFDEEFTAQMITITP
 PDQDDSMCEVDSERRPHFPQFSYSASGTATRTRPLEQKLISEEDLAANDILDYKDD
 DDKV

Purity > 80% as determined by SDS-PAGE and Coomassie blue staining.

Stability Stable for 12 months from the date of receipt of the product under proper storage and handling conditions. Avoid repeated freeze-thaw cycles.

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Storage	Store at -80 centigrade.
Concentration	>50 ug/mL as determined by microplate BCA method.
Preparation	Recombinant protein was captured through anti-DDK affinity column followed by conventional chromatography steps.
Protein Families	Druggable Genome, ES Cell Differentiation/IPS, Protein Kinase
Protein Pathways	Acute myeloid leukemia, Adipocytokine signaling pathway, Apoptosis, B cell receptor signaling pathway, Chemokine signaling pathway, Chronic myeloid leukemia, Colorectal cancer, Endometrial cancer, ErbB signaling pathway, Fc epsilon RI signaling pathway, Fc gamma R-mediated phagocytosis, Focal adhesion, Glioma, Insulin signaling pathway, Jak-STAT signaling pathway, MAPK signaling pathway, Melanoma, mTOR signaling pathway, Neurotrophin signaling pathway, Non-small cell lung cancer, Pancreatic cancer, Pathways in cancer, Progesterone-mediated oocyte maturation, Prostate cancer, Renal cell carcinoma, Small cell lung cancer, T cell receptor signaling pathway, Tight junction, Toll-like receptor signaling pathway, VEGF signaling pathway
Full Length	Full L.

GENE INFORMATION

Gene Name	AKT1 AKT serine/threonine kinase 1 [Homo sapiens (human)]
Official Symbol	AKT1
Synonyms	AKT; PKB; RAC; PRKBA; PKB-ALPHA; RAC-ALPHA
Gene ID	207

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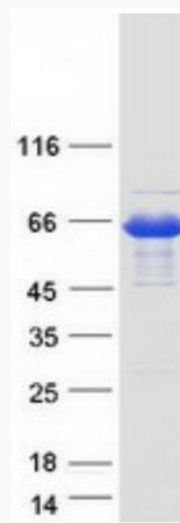
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mRNA Refseq [NM_005163.2](#)


Protein Refseq [NP_005154.2](#)

MIM [164730](#)


UniProt ID [P31749](#)



Coomassie blue staining of purified AKT1 protein.

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