Recombinant Human AKT1 Protein, Full Length, N-His tagged

Cat. No. AKT1-13HFL **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant full-length human AKT1 was expressed by baculovirus in Sf9 insect cells using an N-terminal His tag.
Species	Human
Source	Insect cells
ProteinLength	Full Length
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

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

	epidermal growth factor. Protein phosphatases act as negative regulators of AKT proteins by dephosphorylating AKT or PIP3. The PI3K/AKT signalling pathway is 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 disregulated 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.
Bio-activity	78 nmol/min/mg
Molecular Mass	Observed MW ~61 kDa. Calculated MW ~56 kDa.
Purity	> 85%
Stability	One year at -70 centigrade from date of shipment.
Storage	Store product at –70 centigrade. For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles.
Concentration	0.05 μg/μL
Storage Buffer	Recombinant protein stored in 50 mM sodium phosphate, pH 7.0, 300 mM NaCl, 150 mM imidazole, 0.25 mM DTT,25% glycerol.

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Shipping	Dry ice
References	1. Coffer, PJ. et al: Protein kinase B (c-Akt): a multifunctional mediator of phosphatidylinositol 3-kinase activation. Biochem J. 1998 Oct 1; 335 (Pt 1): 1-13. 2. Anderson, KE. et al: Translocation of PDK-1 to the plasma membrane is important in allowing PDK-1 to activate protein kinase B. Curr Biol. 1998 Jun 4;8(12): 684-91.

GENE INFORMATION

Gene Name	AKT1 AKT serine/threonine kinase 1 [Homo sapiens (human)]
Official Symbol	AKT1
Synonyms	AKT1; AKT serine/threonine kinase 1; AKT; PKB; RAC; PRKBA; PKB-ALPHA; RAC-ALPHA; RAC-alpha serine/threonine-protein kinase; AKT1m; PKB alpha; RAC-PK-alpha; protein kinase B alpha; proto-oncogene c-Akt; rac protein kinase alpha; serine-threonine protein kinase; v-akt murine thymoma viral oncogene homolog 1; v-akt murine thymoma viral oncogene-like protein 1; EC 2.7.11.1
Gene ID	207
mRNA Refseq	NM_005163
Protein Refseq	NP_005154
MIM	164730
UniProt ID	P31749

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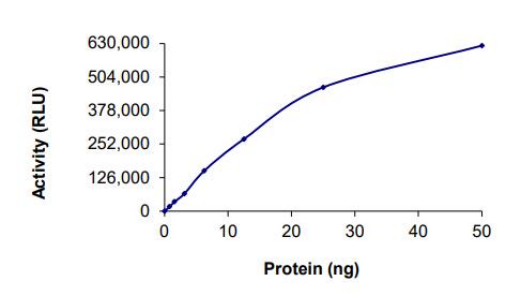
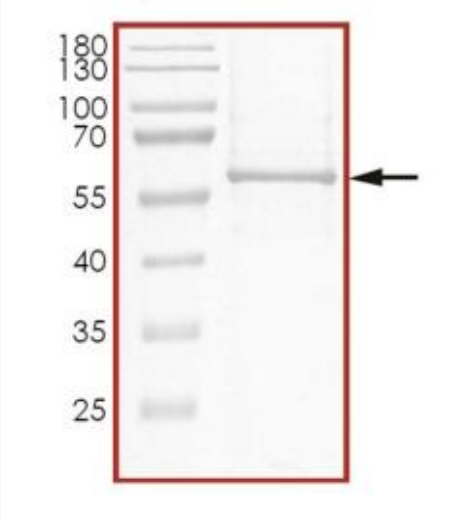
Activity	
Purity	

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