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

Cat. No. AKT1-33HFL **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human AKT1 Protein (Full Length) with N-His tag was co-expressed with the p110 kinase domain leading to phosphorylation of key residues T308 and S473.
Species	Human
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 epidermal growth factor. Protein phosphatases act as negative regulators of AKT

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	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.
Form	Liquid
Applications	WB, SDS-PAGE Application Note: Human AKT1 recombinant protein has been tested in SDS-Page and western blot and is suitable as a control for polyclonal or monoclonal anti-AKT1 in immunological assays. Akt1 recombinant protein is expected to be phosphorylated and in an active state. It is well suited as a control for anti-AKT pT308 which detects phosphorylated T308 residue, and anti-AKT pS473, that detects phosphorylated S473. For western blot use at 50 ng or less. For other assays concentration is user optimized.
Usage	Expiration date is one year from date of receipt.
Storage	Store vial at -20 centigrade or colder prior to use. Avoid cycles of freezing and thawing, aliquot and freeze at -20 centigrade or colder. Centrifuge vial before each opening to dislodge contents from the cap and to clarify if contents are not clear after standing at room temperature. Thaw only prior to immediate use. Maintain sterility. This product DOES NOT contain preservative. DO NOT VORTEX. For long term

	storage we recommend adding a carrier protein such as HSA or BSA to 0.1% (i.e. 1.0 mg/mL) .
Concentration	1.16 mg/mL by UV absorbance at 280 nm
Storage Buffer	20 mM Tris pH8, 300 mM NaCl with 10% glycerol
Shipping	Dry Ice
References	1. Haapalainen AM et al. (2021). Human CPPED1 belongs to calcineurin-like metallophosphoesterase superfamily and dephosphorylates PI3K-AKT pathway component PAK4. J Cell Mol Med. 2. Haapalainen et al. (2018). Expression of CPPED1 in human trophoblasts is associated with timing of term birth. Journal of Cellular and Molecular Medicine

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

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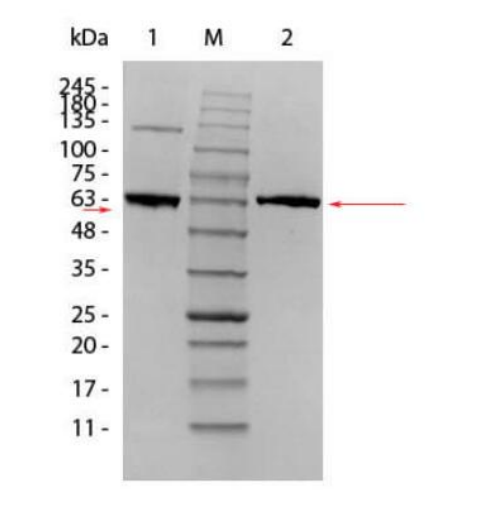
Protein Refseq	NP_005154
MIM	164730
UniProt ID	P31749
WB	

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