AKT2 Protein, Human (sf9, His-GST)

Cat. No.:	HY-P74420
Synonyms:	RAC-beta serine/threonine-protein kinase; PKB beta; AKT2
Species:	Human
Source:	Sf9 insect cells
Accession:	P31751 (M1-E481)
Gene ID:	208
Molecular Weight:	Approximately 83.6 kDa

PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Solution
Formulation	Supplied as a 0.2 μm filtered solution of 20 mM Tris, 500 mM NaCl, 10 % glycerol,pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background	AKT2, a serine/threonine-protein kinase and a member of the AKT kinase family alongside AKT1 and AKT3, plays a pivotal role in orchestrating various cellular processes, including metabolism, proliferation, cell survival, growth, and angiogenesis. This regulatory function is executed through the serine and/or threonine phosphorylation of an extensive array of downstream substrates, with over 100 reported candidates. AKT2 is integral to the insulin-induced translocation of the SLC2A4/GLUT4 glucose transporter to the cell surface, thereby regulating glucose uptake. Additionally, it modulates the storage of glucose as glycogen by phosphorylating GSK3A and GSK3B, inhibiting their kinase activity and influencing cell proliferation. AKT2's involvement in cell survival is evident through the phosphorylation of MAP3K5, mitigating apoptosis. Furthermore, AKT2 plays a crucial role in insulin-stimulated protein synthesis by activating the mTORC1 signaling pathway. It participates in the phosphorylation of FOXO factors, affecting their cellular localization, and regulates NF-kappa-B-dependent gene transcription, positively impacting the activity of CREB1. Beyond these functions, AKT2 is implicated in fatty acid synthesis through the phosphorylation of ATP citrate lyase (ACLY) and inhibits lipolysis via PDE3B phosphorylation. Its role in mediating the effects of growth factors, such as PDGF, EGF, insulin, and IGF-I, underscores its broad impact on cellular responses. Moreover, AKT2 is specifically involved in SPATA13-mediated regulation of cell migration and adhesion, potentially contributing to placental development and inhibiting ciliogenesis associated with

RAB8-dependent cilia growth. A recent identification of PITX2 as a specific substrate highlights its regulatory role in CCND1 mRNA stabilization, emphasizing the isoform-specific functions of AKT2. In skeletal muscle differentiation, AKT2 targets substrates like ANKRD2, showcasing its diverse and intricate role in cellular processes.

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