Akt2/PKBβ, Active

Human, recombinant, expressed in E. coli

Product Number A 9729

Storage Temperature: -70 °C

Synonym: Protein Kinase Bβ

Product Description
Akt, also known as protein kinase B (PKB) or RAC-PKα consists of three highly conserved isoforms which are designated in humans as Akt1, Akt2, and Akt3. Each isoform consists of an N-terminus pleckstrin homology (PH) domain, which mediates lipid-protein or protein-protein interactions, and a C-terminus kinase catalytic domain. Although each kinase is expressed differentially in a tissue-specific manner, they respond in a similar fashion to various stimuli. Akt can be activated by a diverse array of growth factors and physiologic stimuli in a PI3-K-dependent manner. Activation of Akt kinase involves both membrane translocation and phosphorylation. Activated PI3-K generates 3’ phosphoinositide products, 3,4,5-triphosphates (PI-3,4,5-P3) and 3,4-diphosphates (PI-3,4-P2). Akt2 is enriched in insulin-responsive tissues and has been implicated in the metabolic actions of the hormone. Akt2 encodes a protein belonging to a subfamily of serine/threonine kinases containing SH2-like (Src homology 2-like) domains. Cheng, et al., demonstrated that AKT2 is amplified in approximately 10% of pancreatic carcinomas. Overexpression of Akt2 contributes to the malignant phenotype of a subset of human ductal pancreatic cancers. Akt2 is an essential gene in the maintenance of normal glucose homeostasis. The marked hyperglycemia and loss of pancreatic β cells and adipose tissue in Akt2/PKB-β-deficient mice suggested that Akt2/PKB-β plays critical roles in glucose metabolism and the development or maintenance of proper adipose tissue and islet mass for which other Akt/PKB isoforms are unable to compensate fully. In mouse platelets, deletion of the gene encoding Akt2 impaired platelet aggregation, fibrinogen binding, and granule secretion, especially in response to low concentrations of agonists that activate the G(q)-coupled receptors for thrombin and thromboxane A. Loss of Akt2 also impaired arterial thrombus formation and stability in vivo, despite having little effect on platelet responses to collagen and ADP.

The product is active recombinant, full-length human Akt2. It is supplied at a concentration of approximately 100 µg/mL in 50 mM Tris-HCl, pH 7.5, 150 mM NaCl, 0.25 mM DTT, 0.1 mM EGTA and 30% glycerol.

Purity: ≥ 75% (SDS-PAGE)

Molecular weight: ~64 kDa

Specific Activity: ≥ 10 units/mg protein (Bradford).

Unit Definition: One unit will incorporate one nanomole of phosphate into the Akt/SGK substrate peptide (RPRAATF) per minute at 30 °C at pH 7.2 using a final concentration of 50 µM [32P] ATP.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation instructions
For maximum product recovery, after thawing, centrifuge the vial before removing the cap.

Storage/Stability
Stable for at least 12 months when stored as undiluted stock at −70 °C. After initial thawing, store in smaller, working aliquots at −70 °C. Use the working aliquots immediately upon thawing. Avoid repeated freeze-thaw cycles to prevent denaturing of the protein. Do not store in a frost-free freezer.
References:

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