Akt1/ PKBα<sup>His</sup> - inactive
Protein Kinase B
human, recombinant, Sf9 insect cells

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Amount</th>
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<td>PR-325</td>
<td>20 µg</td>
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For in vitro use only!

Shipping: shipped on dry ice

Storage Conditions: store at -80 °C

Additional Storage Conditions: avoid freeze/thaw cycles

Shelf Life: 12 months

Molecular Weight: 59 kDa

Accession number: BC000479

Purity: > 90 % (SDS-PAGE)

Form: liquid (Supplied in 50 mM Tris-HCl pH 8.5, 100 mM NaCl, 1 mM DTT, 25 mM betaglycerophosphate and 50% glycerol)

pH: 8.5

Description:
The N-terminal His-tagged full-length recombinant protein human Akt1 kinase (PKB) is expressed in Sf9 insect cells and purified by Ni-NTA agarose chromatography. Not phosphorylated at Thr308 and Ser473. Protein kinase B or Akt (PKB/Akt) is a serine/threonine kinase, which in mammals comprises three highly homologous members known as PKBα (Akt1), PKBβ (Akt2), and PKBγ (Akt3). PKB/Akt is activated in cells exposed to diverse stimuli such as hormones, growth factors, and extracellular matrix components. The Thr-308 residue in the kinase domain and Ser-473 residue in the tail domain of Akt1 need to be phosphorylated by 3-phosphoinositide-dependent protein kinase-1 (PDK1) and 3-phosphoinositide-dependent protein kinase-2 (PDK2), respectively, for its maximal activation. The corresponding phosphorylation sites in Akt2 (Thr-309 and Ser-474) and Akt3 (Thr-305 and Ser-472) have been identified, and Akt2 and Akt3 appear also to be regulated by PDK1 and PDK2. A limited number of studies of the expression pattern of the three Akt isoforms reveal Akt1 and Akt2 are ubiquitous, whereas Akt3 is expressed predominantly in brain, heart, and kidney. The activation mechanism remains to be fully characterised but occurs downstream of phosphoinositide 3-kinase (PI-3K). PI-3K generates phosphatidylinositol-3,4,5-trisphosphate (PIP<sub>3</sub>), lipid second messenger essential for the translocation of PKB/Akt to the plasma membrane where it is phosphorylated and activated by phosphoinositidedependent kinase-1 (PDK-1) and possibly other kinases. PKB/Akt phosphorylates and regulates the function of many cellular proteins involved in processes that include metabolism, apoptosis, and proliferation. Recent evidence indicates that PKB/Akt is frequently constitutively active in many types of human cancer. Akt1 contains a region homologous to a pleckstrin domain found in multiple signaling molecules and is stimulated by a number of receptor tyrosine kinases, including receptors for IGF, NGF, PDGF, VEGF, angiotensin, and insulin, by the action of phosphatidylinositol 3-kinase (PI 3-kinase).

Selected References:
