

Recombinant AKT2 protein

Catalog No: 81146, 81846

Lot No: 11518001

Expressed In: Baculovirus

Quantity: 20, 1000 µg

Concentration: 0.4 µg/µl

Source: Human

Buffer Contents: Recombinant AKT2 protein is supplied in 25 mM HEPES-NaOH pH 7.5, 300 mM NaCl, 10% glycerol, 0.04% Triton X-100, 0.5 mM TCEP.

Background: AKT2 (AKT Serine/Threonine Kinase 2), also known as Protein Kinase B Beta, PRKBB or PKB Beta, is one of 3 closely related serine/threonine-protein kinases (AKT2, AKT1 and AKT3) called the AKT kinase, and which regulate many processes including metabolism, proliferation, cell survival, growth and angiogenesis. This is mediated through serine and/or threonine phosphorylation of a range of downstream substrates. Over 100 substrate candidates have been reported so far, but for most of them, no isoform specificity has been reported. AKT is responsible for the regulation of glucose uptake and the storage of glucose. It also regulates cell survival via the phosphorylation of MAP3K5 (apoptosis signal-related kinase), mediates insulin-stimulated protein synthesis by phosphorylating TSC2. AKT is involved in the phosphorylation of members of the FOXO factors (Forkhead family of transcription factors), leading to binding of 14-3-3 proteins and cytoplasmic localization. AKT has an important role in the regulation of NF-kappa-B-dependent gene transcription and positively regulates the activity of CREB1 (cyclic AMP (cAMP)-response element binding protein). The Rho GTPase-activating protein DLC1 is another substrate and its phosphorylation is implicated in the regulation of cell proliferation and cell growth. AKT plays a role as key modulator of the AKT-mTOR signaling pathway controlling the correct neuron positioning, dendritic development and synapse formation.

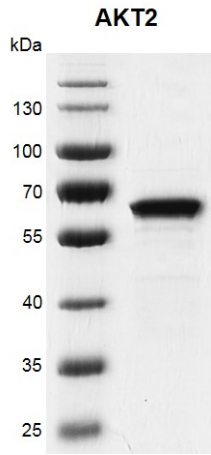
One of the few specific substrates of AKT2 identified recently is PITX2. Phosphorylation of PITX2 impairs its association with the CCND1 mRNA-stabilizing complex thus shortening the half-life of CCND1. AKT2 seems also to be the principal isoform responsible for the regulation of glucose uptake. It phosphorylates C2CD5 on Ser-197 during insulin-stimulated adipocytes. AKT2 is also specifically involved in skeletal muscle differentiation, one of its substrates in this process being ANKRD2.

Protein Details: Recombinant AKT2 protein was expressed in a baculovirus expression system as the full length protein (accession number NP_001617.1) with an N-terminal 6xHis and FLAG-Tag. The molecular weight of the protein is 60.6 kDa.

Application Notes: Recombinant AKT2 protein is suitable for use in the study of enzyme kinetics, inhibitor screening, and selectivity profiling.

Kinase Activity Assay Conditions: 1 µM STK S3 substrate was incubated with different concentrations of AKT2 protein in a 10 µl reaction system containing 1×Enzymatic Buffer, 5 mM MgCl₂, 1 mM DTT, 5 nM SEB and 100 µM ATP for 1 hour. The 10 µl detection reagents containing TK antibody and SA-XL665, each of which was 1:100 diluted with 1× Detection Buffer were added and incubated with the reactions for 30 min. All the operations and reactions were performed at room temperature, and HTRF KinEASE STK assay was used to detect the enzymatic activity.

Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is for research use only and is not for use in diagnostic procedures. This product is guaranteed for 6 months from date of

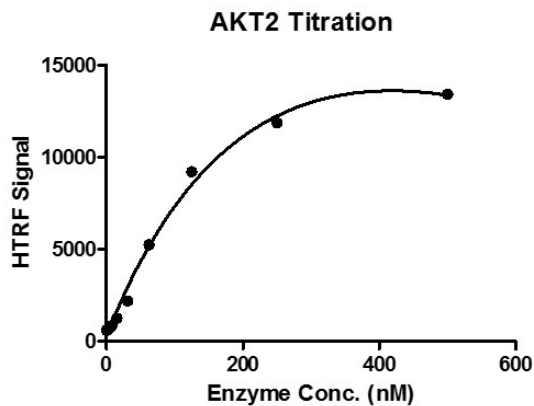


Recombinant AKT2 protein gel

10% SDS-PAGE Coomassie staining

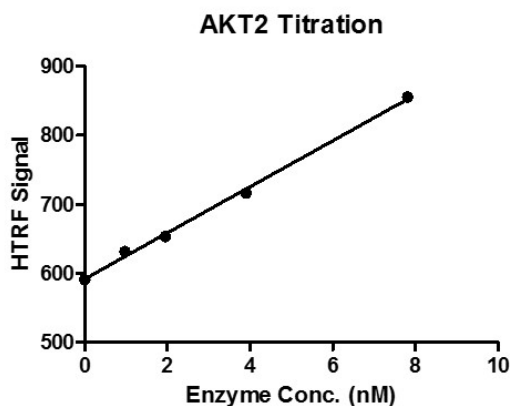
MW: 60.6 kDa

Purity: $\geq 90\%$



HTRF assay for recombinant AKT2 protein activity

1 μM STK S3 substrate was incubated with different concentrations AKT2 protein in a 10 μl reaction system for 1 hour. The 10 μl detection reagents were added and incubated with the reactions for 30 min. All the operations and reactions were performed at room temperature, and HTRF KinEASE STK assay was used to detect the enzymatic activity.



HTRF assay for recombinant AKT2 protein activity

1 μM STK S3 substrate was incubated with different concentrations AKT2 protein in a 10 μl reaction system for 1 hour. The 10 μl detection reagents were added and incubated with the reactions for 30 min. All the operations and reactions were performed at room temperature, and HTRF KinEASE STK assay was used to detect the enzymatic activity.