Data Sheet (Cat.No.TMPY-04552)

TargetMol

AKT1 Protein, Human, Recombinant (His)

General Information

Synonyms:	RAC-ALPHA;v-akt murine thymoma viral oncogene homolog 1;RAC;AKT;PKB;RAC-α;PKB-ALPHA;PRKBA;PKB-α;CWS6
Protein Construction:	A DNA sequence encoding the human AKT1 (NP_001014431.1) (Met 1-Ala 480) was fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Met 1
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	P31749
Molecular Weight:	57 kDa (predicted); 57 kDa (reducing conditions)

QC Testing

Biological Activity:	No Kinase Activity
Purity:	> 87 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing 50 mM Tris, 100 mM NaCl, 3 mM DTT, 0.5 mM PMSF, 5% Glycerol, pH 8.0.Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

Reconstituted with sterile deionized water to 0.15 mg/mL. Reconstitution conditions may vary depending on the lot.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

v-akt murine thymoma viral oncogene homolog 1 (AKT1), or protein kinase B-alpha (PKB-ALPHA) is a serine-threonine protein kinase, belonging to the Protein Kinase Superfamily. AKT1 is a major mediator of the responses to insulin, insulin-like growth factor 1 (IGF1), and glucose. AKT1 also plays a key role in the regulation of both muscle cell hypertrophy and atrophy. AKT1 activity is required for physiologic cardiac growth in response to IGF1

stimulation or exercise training. In contrast, AKT1 activity was found to antagonize pathologic cardiac growth that occurs in response to endothelin 1 stimulation or pressure overload. AKT1 selectively promotes physiological cardiac growth while AKT2 selectively promotes insulin-stimulated cardiac glucose metabolism. AKT1 deletion prevented tumor initiation as well as tumor progression, coincident with decreased Akt signaling in tumor tissues. AKT1 is the primary Akt isoform activated by mutant K-ras in lung tumors, and that AKT3 may oppose AKT1 in lung tumorigenesis and lung tumor progression. A number of separate studies have implicated AKT1 as an inhibitor of breast epithelial cell motility and invasion. AKT1 may have a dual role in tumorigenesis, acting not only pro-oncogenically by suppressing apoptosis but also anti-oncogenically by suppressing invasion and metastasis.
Cancer ImmunotherapyImmune CheckpointImmunotherapyTargeted Therapy

Reference

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Toker A, et al. (2006) Akt signaling and cancer: surviving but not moving on. Cancer Res. 66(8): 3963-6.
Muslin AJ, et al. (2006) Role of Akt in cardiac growth and metabolism. Novartis Found Symp. 274: 118-26.

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