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Product Information

SILu™Prot AKT1, RAC-alpha serine/threonine-protein kinase, human recombinant, expressed in HEK 293 cells SIL MS Protein Standard, ^{13}C and ^{15}N -labeled

Catalog Number **MSST0049**
Storage Temperature –20 °C

Synonyms: Protein kinase B (PKB), Protein kinase B alpha (PKB alpha), Proto-oncogene c-Akt, RAC-PK-alpha

Product Description

SILu™Prot AKT1 is a recombinant, stable isotope-labeled human AKT1 which incorporates [$^{13}C_6$, $^{15}N_4$]-Arginine and [$^{13}C_6$, $^{15}N_2$]-Lysine. Expressed in human 293 cells, it is designed to be used as an internal standard for bioanalysis of AKT1 in mass-spectrometry. SILu™Prot AKT1 is a protein of 501 amino acids (including N-terminal polyhistidine and FLAG® tags), with a calculated molecular mass of 58.8 kDa.

AKT1 is a serine/threonine kinase that is a member of the AKT family. AKT1, like the other AKT proteins, is activated in cells in response to diverse stimuli such as hormones, growth factors, and extracellular matrix components.[1] Once activated by phosphorylation at Ser^{473} and Thr^{308}, AKT1 promotes proliferation, cell survival, motility, and angiogenesis processes, interfering with the apoptotic functions of the cell.[2]

Overexpressed phospho-AKT is frequently observed in human lung, gastric, hepatocellular, pancreatic, renal, prostate, and endometrial cancer as well as multiple myeloma.[3-4] The aggressiveness of several types of solid tumors and hematologic malignancies is linked to the deregulation of AKT and its upstream signaling partners.[5] Members of the AKT pathway are therefore potential targets for novel anti-cancer therapeutics.[5]

Each vial contains 10 µg of SILu™Prot AKT1 standard in a solution of phosphate buffered saline with 1mM EDTA and 25% glycerol. Vial content was determined by the Bradford method using BSA as a calibrator.

Purity: ≥95% (SDS-PAGE)

Heavy amino acids incorporation efficiency: ≥98% (MS)

UniProt: P31749

Sequence Information:
The N-terminal polyhistidine and FLAG tags are italicized.

*MDYKDDDDKGHHHHHHHHGGQ*MSDVAIVKEGWLH
KRGEYIKTWRPRYFLLKNDGTFIGYKERPQDVDQRE
APLNNFSVAQCQLMKTERPRPNTFIIRCLQWTTVIERT
FHVETPEEREEWTTAIQTVADGLKKQEEEEMDFRSG
SPSDNSGAEEMEVSLAKPKHRVTMNEFEYLKLLGKG
TFGKVILVKEKATGRYYAMKILKKEVIVAKDEVAHTLT
ENRVLQNSRHPFLTALKYSFQTHDRLCFVMEYANGG
ELFFHLSRERVFSEDRARFYGAEIVSALDYLHSEKNV
VYRDLKLENLMLDKDGHIKITDFGLCKEGIKDGATMKT
FCGTPEYLAPEVLEDNDYGRAVDWWGLGVVMYEMM
CGRLPFYNQDHEKLFELILMEEIRFPRTLGPEAKSLLS
GLLKKDPKQRLGGGSEDAKEIMQHRFFAGIVWQHVY
EKKLSPPFKPQVTSETDTRYFDEEFTAQMITITPPDQD
DSMECVDSERRPHFPQFSYSASGTA

Precautions and Disclaimer

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

Storage/Stability

Store the product at –20 °C. The product retains its concentration for at least 2 years as supplied. After initial thawing it is recommended to store the protein in working aliquots at –20 °C.

References

1. Alessi, D.R., and Cohen, P., Mechanism of activation and function of protein kinase B. *Curr. Opin. Genet. Dev.,* **8(1)**, 55-62 (1998).
2. Coffer, P.G. et al., Protein kinase B (c-Akt): a multifunctional mediator of phosphatidylinositol 3-kinase activation. *Biochem. J.,* **335(1)**, 1-13 (1998).
3. Altomare, D.A., and Testa, J.R., Perturbations of the AKT signaling pathway in human cancer. *Oncogene,* **24(50)**, 7455-7464 (2005).
4. Cicenas, J., The potential role of Akt phosphorylation in human cancers. *Int. J. Biol. Markers,* **23(1)**, 1-9 (2008).
5. Garcia-Echeverria, C., and Sellers, W.R., Drug discovery approaches targeting the PI3K/Akt pathway in cancer. *Oncogene,* **27(41)**, 5511-5526 (2008).

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