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Product Information

SILu™Prot AKT2, RAC-beta serine/threonine-protein kinase, human recombinant, expressed in HEK 293 cells SIL MS Protein Standard, ^{13}C and ^{15}N-labeled

Catalog Number **MSST0051**
Storage Temperature –20 °C

Synonyms: Protein kinase Akt-2, Protein kinase B beta (PKB beta), Proto-oncogene c-Akt, RAC-PK-beta

Product Description

SILu™Prot AKT2 is a recombinant, stable isotope-labeled human AKT2 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 AKT2 in mass spectrometry. SILu™Prot AKT2 is a protein of 502 amino acids (including N-terminal polyhistidine and FLAG® tags), with a calculated molecular mass of 58.9 kDa.

AKT2 is a serine/threonine kinase that is a member of the AKT family. AKT2, like the other AKT members, 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^{474} and Thr^{309}, AKT2 is involved in glucose metabolism, transcription, survival, cell proliferation, angiogenesis, and cell motility.[2] AKT2 seems to be the principal isoform responsible in the regulation of the insulin signaling pathway.[3]

Overexpressed phospho-AKT is frequently observed in human lung, gastric, hepatocellular, pancreatic, renal, prostate, and endometrial cancer as well as multiple myeloma.[4-5] The aggressiveness of several types of solid tumors and hematologic malignancies is linked to the deregulation of AKT and its upstream signaling partners. Members of the AKT pathway are therefore potential targets for novel anti-cancer therapeutics.[6]

Each vial contains 10 µg of SILu™Prot AKT2 standard in a solution of phosphate buffered saline with 1 mM 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: P31751

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

*MDYKDDDDKGHHHHHHHHGGQ*MNEVSVIKEGWLH
KRGEYIKTWRPRYFLLKSDGSFIGYKERPEAPDQTLP
PLNNFSVAECQLMKTERPRPNTFVIRCLQWTTVIERT
FHVDSPDEREEWMRAIQMVANSLKQRAPGEDPMDY
KCGSPSDSSTTEEMEVAVSKARAKVTMNDFDYLKLL
GKGTFGKVILVREKATGRYYAMKILRKEVIIAKDEVAH
TVTESRVLQNTRHPFLTALKYAFQTHDRLCFVMEYAN
GGELFFHLSRERVFTEERARFYGAEIVSALEYLHSRD
VVYRDIKLENLMLDKDGHIKITDFGLCKEGISDGATMK
TFCGTPEYLAPEVLEDNDYGRAVDWWGLGVVMYEM
MCGRLPFYNQDHERLFELILMEEIRFPRTLSPEAKSLL
AGLLKKDPKQRLGGGPSDAKEVMEHRFFLSINWQDV
VQKKLLPPFKPQVTSEVDTRYFDDEFTAQSITITPPDR
YDSLGLLELDQRTHFPQFSYSASIRE

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. Ng, Y. et al., Rapid activation of Akt2 is sufficient to stimulate GLUT4 translocation in 3T3-L1 adipocytes. *Cell metabolism,* **7(4)** 348-356 (2008).
4. Altomare, D.A., and Testa, J.R., Perturbations of the AKT signaling pathway in human cancer. *Oncogene,* **24(50)**, 7455-7464 (2005).
5. Cicenas, J., The potential role of Akt phosphorylation in human cancers. *Int. J. Biol. Markers,* **23(1)**, 1-9 (2008).
6. Garcia-Echeverria, C., and Sellers, W.R., Drug discovery approaches targeting the PI3K/Akt pathway in cancer. *Oncogene,* **27(41)**, 5511-5526 (2008).

Legal Information

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