Protein Kinase B (PKB, Akt) is involved in *Rhipicephalus (Boophilus) microplus* embryo cell line BME26 survival

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Protein kinase B (PKB or AKT) is an important enzyme for regulation of insulin cellular responses and also for cell survival. In this work we investigated the role of PKB in BME26 cell survival. A cDNA sequence encoding *Rhipicephalus (Boophilus) microplus* AKT (RmAKT) was isolated from *R. microplus* eggs using degenerate primers and RACE-PCR approaches. The RmAKT deduced aminoacid sequence denotes highly conserved homology and structural features already described for other organisms. The Pleckstrin Homology (PH) domain ranges from position 39 to 141, the Serine/Threonine (Ser/Thr) kinase domain between positions 180 and 437, and a hydrophobic motif from position 501 to 506. The putative phosphorylation sites are also conserved at Thr³³⁶ and Ser⁵⁰⁵ residues. Chemical inhibition of AKT activity with the specific inhibitor 10-DEBC reduced cell viability in a dose-dependent manner as observed by MTT assays, and an IC₅₀ was calculated at 48µM. Interestingly, the assay was not influenced by serum withdrawn. The RNAi approach was also used to determine AKT role in BME26 survival. Incubation of double-stranded RNA specific for RmAKT (dsAKT) under cell culture conditions reduced cell viability in 60% when compared with control treatments. During embryogenesis RmAKT transcripts level is high on 1st day after oviposition, but strongly decreases by day 3, and remains like that until near hatching. These data suggest that AKT role in cell survival is conserved in ticks. Further studies are on the way to observe AKT functions in BME26 cells and *R. microplus* embryos metabolism.

Word Keys: tick, invertebrate, insulin signaling, cell survival, BME26 cell line
Supported by: FAPERJ/CAPES, INCT-Entomologia Molecular, CNPq and Procad/CAPES