GLYCOGEN SYNTHASE KINASE-3ß (GSK-3ß) in *RHIPICEPHALUS BOOPHILUS MICROPLUS* EGGS

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Glycogen synthase kinase-3 (GSK-3ß) was identified originally as one of several protein kinases that phosphorylated and inactivated glycogen synthase, the final enzyme in glycogen biosynthesis. It may also play important roles in protein synthesis, cell proliferation, microtubule dynamics and cell motility by phosphorylating initialization factors, components of the cell-division cycle and transcription factors. Recently it was show to be required for nuclear reformation *in vitro*. The activity of GSK-3ß is dependent of insulin cascade involving a protein kinase B. GSK-3ß was also identified in mitochondria regulated apoptotic effects.

Previously, our group identified that GSK-3ß could be detected in different stage eggs of *B. microplus*. We cloned and its sequence showed similarities to the enzymes already described for other organisms. In this work we detected the enzyme in isolated nuclear and mitochondrial fractions from the egg of *B. microplus* by western-blot analysis, using Anti-GSK-3ß antibody. The enzyme activity was also detected radiochemically throughout embryogenesis in both fractions. The glycogen content in nuclear fractions decreased even sixth of tick development, when GSK-3ß activity is increased. In mitochondria was not detected glycogen content, but we identified the significant GSK-3ß activity. GSK-3ß inhibitors were injected in fully engorged female ticks and their effects in oviposition were measured. Lithium chloride injections abolished the oviposition.

Taken together our results suggest that there is a GSK-3ß in nuclear and mitochondrial fractions from the eggs and it may also involved with the glycogen metabolism and the expression of genes during embryogenesis.