Study of Gsk-3 Related with Glycogen Content in *Aedes aegypti* Diapause Eggs

Danielle G. Novelli, Eldo Campos, Wagner Vital and Carlos Logullo

Laboratório de Química e Função de Proteínas e Peptídeos, UENF.

In this study we investigated the glycogen metabolism during diapause in *Aedes aegypti* eggs. Diapause is a state of hypometabolism that ocurrs in many organisms that is triggered by biological or climatic event and lasts as long as stimulus is present. Glycogen metabolism is regulated by glycogen synthase kinase (GSK-3) which was identified as a key enzyme involved in this process. When GSK-3 is inhibited, the main events are: glycogen and protein synthesis, transcription factors activation and dorsal axis formation in *Xenopus*. In our experiments we stablished three periods during egg development: prediapause (48 hours after oviposition); diapause (21 days after oviposition) and postdiapause (diapause disruption by placing the eggs on water). Our results indicate that GSK-3 inhibition by phosphorylation on the Ser^9 is stronger in postdiapause eggs when compared with 48hs after oviposition and diapause conditions. However, the relative transcription of GSK-3 measured by real time PCR is higher in postdiapause. On the other hand, glycogen levels were determined and diapause eggs presented smaller amounts of this nutrient. The observation that higher glycogen content is correlated with lower levels of Ser^9 phosphorylarion suggests that GSK-3 regulation shows a conserved mechanism during diapause in mosquitos eggs. Supported by CNPq, INCT, DECIT, FAPERJ and CAPES.