INVOLVEMENT OF KINASES IN THE DIVISION PROCESS AND CELL DIFFERENTIATION IN THE SEA URCHIN *Lytechinus variegatus*

A. Fabres, L. Abreu and C. Logullo

LQFPP – CBB – UENF

Protein kinases control diverse cell processes including metabolism, cell cycle progression, cytoskeletal rearrangement, cell movement, apoptosis, and differentiation. Though phosphatidylinositol 3-OH kinase (PI3K) has been previously described for sea urchin model, we now suggest its association with Protein Kinase B (PKB) as an upstream component in the insulin triggered cascade. Wild specimens were collected in Búzios (RJ – Brazil), and *in vitro* fertilization was promoted by mixing male and female gametes in natural filtrated sea water at 21°C. Embryo development was monitored by light microscope, up to morula stage (aproximately 7.5 hours after fertilization). PKB activity was detected during embryogenesis in egg homogenates and was indirectly inhibited when PI3K was specifically inhibited by wortmanin addition. On the other hand, PKB activity is also influenced by the inhibition of Glycogen Synthase Kinase 3 (GSK3) by SB216763 and Li^+ (less specific). GSK3 is known as one of the PKB's phosphorilation targets, located downstream in the insulin signaling pathway. Both inhibitors mentioned above were able to alter glucose and glycogen distribution in eggs throughout embryogenesis. Interestingly, although the substances used inhibited different targets, visually, the embryos presented the same pattern of morphological aberrations (odd numbered cells and division defects). Our data strongly suggest the presence and the participation of a PI3K/PKB/GSK-3 axis in *L. variegatus* embryogenesis.

Supported by: FAPERJ, CAPES, PADCT, CNPq, PRONEX