

*Xenopus tropicalis* represents one of the most important model organism used in developmental and cellular biology. Laboratory of Developmental Biology at the Faculty of Science, Charles University in Prague has successfully established a long-term culture of *X. tropicalis* juvenile testicular cells. Based on expression profiling analysis of selected specific markers (Sox9, WT1, etc) it was proven that the major cell type in this culture is pre-Sertoli cells. Furthermore these pre-Sertoli cells allow a longterm cultivation of the germinal stem cells. By performing a histochemical test for the presence of alkaline phosphatase in the colony of these cells were proven the features of stem cells. In this diploma thesis we focused on optimization of work with the mixed cell culture. In particular we define conditions of dissociation and subsequent separation of a feeder-layer formed by the pre-Sertoli cells. We also attempted to develop suitable conditions for transfection of the germinal cells. With these techniques we will to investigate the functional properties of the germinal stem cells. Moreover, it provides us a powerful tool for performing another experiments focused on transgenesis and/or different gene inactivation.