

Because of their possible therapeutic potential stem cells are one of the most promising fields of study in biology. The aim of this thesis was to study the migration potential of testicular stem cells of *Xenopus tropicalis*, whose culture was established from the testes of juvenile males in the laboratory of my supervisor. Due to external fertilization and embryonic development *Xenopus* represents an ideal model organism for transplantation and microinjection experiments *in-vivo*. Transplantation of vital marked (PKH26) testicular stem cells into blastula and peritoneum of tadpoles showed their wide migratory potential including intestine (entoderm), heart, pronephros, genital groove (mesoderm) and epidermis (ectoderm). Based on my experiments, I found that the ideal number of cells for transplantation ranges between 250-500 per tadpole. To further characterize the stem cells, I constructed a plasmid vector carrying a gene for a red fluorescent protein. This plasmid was then used for preparation of frogs with whole-body expression of Katushka RFP under control of CAG promoter. The next aim is to gain the RFP positive offspring by crossing the transgenic individuals with the wild type. Male offspring can be used for establishing culture of testicular stem cells stably expressing the reporter gene. In this way it will be possible to study not only the distribution of the transplanted cells in the body, but also the potential transmission to subsequent generations.