In our Laboratory of Developmental Biology there was established a long term culture derived from Xenopus tropicalis testes. It contains pre-Sertoli cells mostly. They compose a feeder layer allowing cultivation of stem cells, revealing the morphology of spermatogonial stem cells. This diploma thesis was focused on a preparation of two growth factors, FGF2 (fibroblast growth factor 2) and GDNF (glial cell line-derived neurotrophic factor), with the subsequent characterization of their influence at cell culture mentioned above. Factors were selected on the basis of the microenvironmental niche theory, according which FGF2 and GDNF are the most important factors for spermatogonial stem cells proliferation and self-renewal. FGF2 recombinant factor was gained using the expression plasmid pET-15b. Its characterization in the testicular culture brought surprising result. Even a low concentration of FGF2 factor (2.5ng/ml) caused cell detaching and dying. Similar result was previously shown in differentiating osteoblast culture only. More experiments need to be done to prove if apoptose take place and why do testicular cells act this way.

Key words: Xenopus tropicalis, FGF2, GDNF, SSC, pre-Seroli cells