

Abstract

Thanks to their ability to differentiate into variable cell types and migrate to the site of an injury mesenchymal stem cells (MSC) are broadly used in regenerative medicine. Their relative easy availability together with the property to control the immune system determines them as a cure of autoimmune diseases or a recovery of wounded tissues. Similar features possess Sertoli cells which take place in the seminiferous tubule of testis.

Cell culture of testicular stem cells from juvenile male testes of *X. tropicalis* (XtTSC) was established in supervisor's laboratory. This cell culture showing both MSC's and SeC's properties was transformed to carry red fluorescent protein RFP. The aim of this diploma thesis was to investigate an behavior of transformed XtTSC in living organism, therefore cells were transplanted into the *X. tropicalis* tadpoles in stage 41. Subsequently, their migration potential was explored. To study of XtTSC's differentiation potential it was necessary to introduce a reliable sectioning techniques for the subsequent immunohistochemical analysis.

Based on our experiments, we found that the XtTSC's cell culture contains precursors of SeC and peri-tubular myoid cells, however *in vivo* these cells turned into the dedifferentiated MSC-like state allowing a strong migration through the tadpole's body.

Key words: testicular stem cells, *Xenopus tropicalis*, differentiation