
**Petra Konečnik**, born on September 22th 1985 in Slovenj Gradec, after finishing high school in Slovenj Gradec she pursued studying in Ljubljana at the Biotechnical faculty, academic study programme in Biotechnology. Of all the areas she was particulaly fascinated by therapeutic biotechnology and use of stem cells for medical treatment. She did research work for her graduation thesis at the Blood Transfusion Centre of Slovenia under supervision of assist. prof. Miomir Knežević and Tina Cirman, PhD, where they were determining expression of embryonic stem cell markers in the peripheral human blood using real-time PCR method. In June 2009 she successfully graduated and now continues studying at University of Ljubljana, postgraduate programme in Biomedicine. Currently she is cooperating on project Systher.

**Graduation thesis:**

## Determination of the embryonic stem cell markers expression in the peripheral human blood using real-time PCR method

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There are several types of stem cells to be found in the peripheral blood of an adult. Recent studies indicate there is a subpopulation of very small cells in peripheral blood that expresses embryonic markers. These cells are rare, hard to isolate and to characterize. The purpose of this graduation thesis was to demonstrate their presence in adult human peripheral blood. By determinig the expression of embryonic stem cell markers using real-time PCR. After collection of peripheral blood samples from healthy donors, isolation of buffy coat and mononuclear cells was performed using density gradient centrifugation. RNA was isolated from each sample, RNA integrity number measured, cDNA synthesized and the expression of embryonic markers Oct-4A, Sox-2 and Nanog verified using real-time PCR. Our result show there is a subpopulation of stem cells in peripheral blood that express embryonic stem cell markers mentioned above. We believe that this cells circulate around the body and participate in tissue regeneration. In the future these cells could be expanded in vitro and used for the purposes of regenerative medicine.