The bachelor thesis looks into the issue of cancer immunotherapy and it deals with possible use of immunotherapy by dendritic cell vaccine in patients with prostate cancer, which is now in phase I/II of clinical trials on the Department of Immunology at Faculty hospital Motol. The target of the practical part was to cope with the technology of preparation of blood samples and their measurement by means of the flow cytometry, with subsequent data evaluation and processing. The highlight of this work was the statistical evaluation of obtained data of lymphocyte subpopulations levels in peripheral blood, and their possible correlation with disease progression. The main subject of the research were subpopulations CD3 +, CD4 +, CD8+, CD16+, CD19+ and HLA-DR+.

The monitoring of these subpopulations in patients treated by dendritic cell vaccine showed the decrease of both leukocyte and lymphocyte levels, reduction of CD4/CD8 index, decrease of relative and absolute numbers of CD4+ cells and significant decrease of both relative and absolute B lymphocyte numbers during the progress of the disease.