## ABSTRACT

Prostate cancer is the second leading cause of cancer death in men in Europe and the US. In the context of previous preclinical experiments and clinical studies there are certain assumptions predicating successful application of immunotherapy in the treatment of patients with prostate cancer. Promising results have been achieved by a combination of different treatment modalities which provide a synergistic antitumor effect. One of these combinatorial options is the use of antitumor vaccines and adoptive T cell transfer.

The topic of this thesis is to provide a fresh insight into the past and current trends following the long-term candidate´s department program in the field of anti-tumor immunotherapy. The experimental part of this thesis revolves around our own results published in this field. The introductory chapter delivers a basic overview of cellular mechanisms of anti-tumor immunity and the role of individual immune components in these processes. Following chapters are dedicated to current immunotherapeutic approaches with emphasis on the adoptive T cell transfer and implication of this technology in the treatment of prostate cancer. The results section describes the establishment of our protocol for adoptive T cell transfer as well as the protocol for *ex vivo* enrichment of human T cell populations for cancer peptide-reactive T lymphocytes in patients with prostate cancer. Importantly, this thesis also includes our clinical data aimed at testing the biosafety of established protocol, evaluation of the capacity of patients T cells to induce anti-tumor immune responses as well as the assessment of the patient's clinical responses to a DCVAC/PCa dendritic cell-based vaccine.



**Key words:**
adoptive T cell transfer, DCVAC/PCa, prostate cancer, antitumor immunotherapy