

Abstract

Bladder carcinoma (BCa) is among the most common carcinomas in the Western world. Despite the availability of effective therapies, there is currently an urgent need to develop a stratification method, which would enable the accurate identification of patients responsive to therapy. In the theoretical part of my diploma project I describe the heterogeneity of BCa and the currently applied immunotherapeutic approaches. I specifically focused on the *Bacillus Calmette-Guérin* (BCG) vaccine instillation. For decades another use of BCG has been a prophylactic vaccination against tuberculosis (TB) infection. BCG serves as a model treatment because it is highly efficient when prescribed to the responsive patient. However, an effective stratification is yet to be developed for BCa and latent tuberculosis infection (LTBI) diagnosis and/or monitoring.

In the experimental part of my project, I developed and tested a 10-parameter panel for T cell-specific activation test (TAT) applicable for a stratification of BCa patients as well as for the detection of LTBI. I tested the panel on positive controls using flow cytometry (FCM) method because it allows for detection and measurement of dozens of markers at a single cell level. It is easily applicable to available urine and blood samples obtained from BCa patients.

Combination of TAT markers allowed me to detect reactive T cell population after polyclonal and antigen-specific stimulation. Therefore, I conclude that the TAT panel is suitable for further development and validation of a patient stratification method based on the detection of antigen-specific T cell response.