Abstract: Phage display is a well-established approach for the identification of bioactive therapeutic peptides through the use of high diversity libraries. These peptides present several clinical advantages, including specificity and selectivity. Thus, phage display can be used to generate 'targeted therapeutics', which is the current clinical paradigm of choice in the field of oncology. Prostate carcinomas belong to the most widespread tumors, and their number is increasing. Cell surface proteins of prostate cancer cells are especially important. Identification of ligands for these proteins will allow use of these ligands as potent diagnostic and therapeutic tools.

The aim of this study was to identify peptides that specifically targeted prostate cancer cells. Prostate cancer cells (PC3 cell line) were chosen as target for screening through phage peptide library. For this purpose, a phage display 7-peptide library was exploited for biopanning. Following a number of rounds of biopanning, several phages were obtained with the ability for specific binding to target cells. The ELISA technique was exploited to test the specificity of isolated phages towards prostate cancer target cells. Currently, we are analyzing the data obtained by sequencing of isolated peptides via bioinformatic tools. Furthermore, determining the sequence of peptides displayed on the surface of phages is currently under performance. The selected peptides can be used for prostate cancer diagnosis in urine and blood of patients thereby representing potential for finding novel therapeutic approaches for prostate cancer.