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A multiplexed protein based urine chip to distinguish recurrent from non-recurrent BCa

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Cancer of the Bladder (BCa) is killing thousands of people a year. It is the fourth leading cause of cancer in men (US) and the costs for treatment are rising due to high relapse rate (50% within 2 years). To intervene recurrence of BCa routine cytology and cystoscopy are done, representing the gold standard. Nevertheless, these diagnostic tools are expensive, time consuming, invasive and lead to urinary infections in up to 16% of patients. Therefore, detection in urine to monitor recurrent BCa is in focus. Commercial urine based tests measure single markers, such as NMP-22 and BTA. However, none of them has proofed good sensitivity and specificity. To overcome the problem of low sensitivity and specificity, we have developed a protein microarray based on a unique panel of 10 biomarkers. This BCa chip consists of ARChip Epoxyglass-slidesspotted with captured antibodies to bind the respective biomarkers. The binding is then detected with a secondary biotinylated antibody and Dy647-streptavidin (simultaneously within 5 hrs). The chip was validated using samples of 76 patients. ROC curves were generated and the optimal cut-off value determined. Expression of four biomarkers (DCN, VEGF, IL-8, EN-2) out of 10 was significantly different between patient samples with recurrent and non-recurrent BCa. Those are actually subject to a multi-center study with 1013 patients. This work is financially supported by FP7 Dipromon.

Biography

Gogalic Selma has completed her Master of Science and Engineering. In January 2013, she started her PhD at the University of Vienna/Austrian Institute of Technology on "multi-modular biomarker analysis work-flow for diagnosis, prognosis and monitoring of drug treatment response in bladder cancer". Part of this work has been published in peer reviewed journals. Currently, she is also a Lecturer at the University of Applied Sciences in St.Pölten (Digital Healthcare) for measuring- and analytical methods in healthcare systems.

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