Discovery of diagnostic and prognostic biomarkers - high throughput proteomic analysis of urine and blood plasma samples of patients undergoing image-guided tumor ablation

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Proteomic analysis from ablation patients before and after treatment may help to discover potential new biomarkers, inflammatory pathways and immunological stimuli. Patient plasma and urine samples were taken before, immediately after, and subsequently after 2-3 hours, 2-4 weeks, three months and six months following thermal tumor ablation therapy. Samples were separated by use of different chromatographic methods for enrichment and separation of low-abundance proteins. After chromatographic separation, each fraction from patient plasma was analyzed by SDS-PAGE followed by identification of proteins via LC-MS/MS. In order to detect potential candidate biomarkers, the whole plasma fractions separated by these methods were also digested by trypsin, analyzed by LC-MS/MS, and differently expressed proteins were identified.

IgG and IgM antibodies in patient plasma were isolated and the concentration of both antibodies and their glycosylation at each time point was monitored.

By use of these methods, changes in the protein profile of patient plasma and urine after tumor ablation is followed. This is a promising way to identify potential prognostic and diagnostic tumor biomarkers, inflammatory mediators, and evidence of immunological stimulation and specific growth factor release.

Biography
Djuro Josic has completed his PhD from the Technical University in Berlin, Germany and his postdoctoral studies from National Institutes of Health, Bethesda, MD, USA. He is now Professor of Biotechnology at the University of Rijeka, Croatia, and Professor Medicine (Research) at Brown University, Providence, RI, USA. He has published more than 150 papers in peer-reviewed journals, more than 20 patents, and he is also serving as an Editor of International Journal of Proteomics, Guest Editor of Journal of Chromatography A, Food Technology and Biotechnology as well as a member of the Editorial Board of Electrophoresis.

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