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Potential use of reciprocal levels of serum and urinary peptides for discriminating prostate cancer from benign prostatic hyperplasia

Jaime Jacqueline Jayapalan
University of Malaya, Malaysia

The ineptitude of prostate specific antigen to serve as a reliable biomarker due to unacceptably high rates of false positives often results in erroneous (over) diagnosis and unnecessary radical clinical therapies. The aim of the present study was to screen for potential serum and urine biomarkers that can discriminate prostate cancer (PCa) from benign prostatic hyperplasia (BPH) using gel and lectin-based proteomic approaches. Together, the investigations had led to the identification of several serum and urinary proteins with differently altered levels of abundance. The serum proteins include apolipoprotein A-II, complement C3, ITIH4, alpha-1-antitrypsin, kininogen and transthyretin whilst, the urinary proteins include protein AMBP, proactivator polypeptide and ITIH4. When serum ITIH4f and urinary ITIH4f, ITILf1 and ITILf2 were selected and their levels of abundances were further assessed using lectin- and/or immuno-blotting techniques, significant inversely altered levels of serum to urinary ITIH4f and those of urinary ITIH4f to ITIL peptides between the two groups of subjects were validated. When the levels of serum and urinary fragment proteins were considered as indices in terms of abundance ratio of, (i) serum to urinary ITIH4f, (ii) urinary ITIH4f to ITILf1 and (iii) urinary ITIH4f to ITILf1 peptides, marked segregating differences for the different groups of subjects were obtained. Non-overlapping individual mean ratio indices between the groups of subjects indicate strong discriminatory power for potential use for distinguishing PCa from other non-cancer conditions although, this requires further validation at epidemiological scale using high-throughput techniques.

Biography

Jaime Jacqueline Jayapalan received her PhD in Cancer Proteomics from the University of Malaya, Malaysia, in October 2015. She joined the University of Malaya Center for Proteomics Research (UMCPR) in January 2009 and has since served as a Research Officer. She actively pursues her interest in cancer biomarker researches utilizing both the gel and non-gel based proteomics approaches as well as lectin in search of novel complementary biomarkers in serum and urine samples from patients with cancer. To date, she has published more than fifteen articles in reputed journals.

jaime_jacklyn@um.edu.my

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