

4th Glycobiology World Congress

September 17-19, 2018 | Rome, Italy

Applications of lectin-based proteomics in cancer biomarker discovery research

Onn Haji Hashim

University of Malaya , Malaysia

We have applied a galactose binding lectin in proteomics studies to identify low-abundant glycoproteins that can be used as cancer biomarkers. Analysis of urine samples of patients with prostate cancer showed the aberrant expression of truncated fragments of inter-alpha-trypsin inhibitor heavy chain 4, saposin B and bikunin compared to patients with benign prostatic hyperplasia. Currently, diagnosis of prostate cancer is very much reliant on the levels of serum prostate specific antigen and transrectal ultrasound-guided biopsy of the prostate gland. In more than 80% of patients subjected to prostate biopsy, the procedure appears unnecessary as malignancy was ruled out since patients had benign prostatic hyperplasia. Hence, we have proposed the use of the urinary peptide biomarkers to discriminate patients with benign prostatic hyperplasia from those with prostate cancer so that they do not have to be subjected to the invasive and costly prostate biopsy procedure. In a separate study using the same lectin, higher levels of proteoglycan 4 and lower levels of plasma protease C1 inhibitor were detected in sera of stage 0 and stage I breast cancer patients compared to healthy control women. In view of the reciprocal trend of altered levels of proteoglycan 4 and plasma protease C1 inhibitor between breast cancer patients and controls, the two serum O-glycosylated proteins may be used as complementary biomarker candidates for screening of early breast cancer.

Biography

Onn Haji Hashim received his PhD from the University of Glasgow in 1987. He joined the University of Malaya in 1988, and is currently a Professor at the Department of Molecular Medicine, Faculty of Medicine. During the tenure, he has undertaken sabbatical leave to conduct research at the Osaka University Medical School, Japan and University of Alabama at Birmingham, USA. He was recently appointed Visiting Professor at Prince of Songkla University, Thailand. His research interest is in proteomics, particularly in the use of lectin-based techniques in search of novel glycopeptide biomarkers in serum and urine samples from patients with different cancers. He is currently an Editorial Board Member of *Biomarker Research* and Head of University of Malaya Centre for Proteomics Research.

onnhashim@um.edu.my

Notes: