

Meeting Report

The 8th East Midlands Proteomics Workshop

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Abstract

The eighth meeting of the East Midlands Proteomics Workshop chaired by Dr. Balwir Matharoo-Ball was held in mid-November, in conjunction with the John van Geest Cancer Research Centre (JvGCRC) at the Clifton Campus of Nottingham Trent University. The Workshop was jointly organised by colleagues from three Universities in the region (Nottingham Trent, Nottingham, and Loughborough) with a view to enhance awareness of facilities available in the East Midlands, disseminate specialist knowledge and information relating to proteomics technologies, highlight examples of proteomic research and provide a forum to discuss research interactions and funding opportunities. The free, one-day meeting was attended by over 200 people, and packed in a full program of oral presentations with a poster session and a trade exhibition. Focussing around the themes of biomarker discovery, mass spectrometry for proteomics, a diverse range of research topics were presented including human disease, biomimetic surfaces, microbes and breath analysis of volatile compounds.

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The Workshop was opened by Professor Robert Rees, Director of the newly formed John van Geest Cancer Research Centre at Nottingham Trent University and featured three outstanding keynote presentations by external researchers detailing aspects of their own research. The day started with a presentation from an eminent research scientist Professor O. John Semmes from Eastern Virginia Medical School, USA and a newly appointed visiting professor at NTU. John set the scene for discussion of the need to develop an integrated organ-specific approach for

accelerating biomarker discovery (specifically prostate cancer) employing imaging MS of tissue, glycan analysis of prostatic secretions and surface proteins in cell lines. Dr Kathryn Lilley (the University of Cambridge) described research investigating the subcellular localisation of proteins and its importance in the analysis of protein function including the use of LOPIT (localisation of organelle proteins by isotope tagging) and iPAC (interactomes using parallel affinity capture). Professor Haroun Shah, of the Health Protection Agency, described the work translating microbial proteomics, and MALDI and ESI-MS into clinical applications and how including genomic data enhances the value of information obtained.

These keynote talks made up a complete program which balanced presentations from senior and junior researchers from the East Midlands proteomics community. From the host University, Dr Alan Hargreaves presented research on the proteomic analysis of organophosphates and their mechanisms of toxicity and showed data supporting the notion that cytoskeletal proteins and their regulatory pathways are disrupted with low level organophosphate exposure. From Loughborough University, Professor Paul Thomas gave an insight into his research to develop non-invasive *in-vivo* skin and breath monitoring and analysis for biogenic volatile organic compounds using both time-of-flight MS and ion-mobility spectrometry MS. Dr Sabrina Dyall from the University of Nottingham discussed proteomic approaches to study the hydrogenosome, an unusual ATP-producing organelle found in some parasitic protozoa.

Local and national junior investigators submitted abstracts competing to present their PhD and early career research work in the oral presentation sessions. We were rewarded by five high quality presentations which illustrated the extent and breadth of the research in the local area and beyond. Judith Nicolson (University of Edinburgh) received the prize for the best oral presentation with her excellent presentation on characterisation of development of an AGR2 binding peptide aptamer and proteomic methods for investigating protein-protein interactions. The applications of MALDI-MS imaging for tissue analysis and novel protein arrays were discussed by Richard Goodwin (University of Glasgow). Susan Gill (Nottingham Trent University) revealed her research into biomarkers correlating with drug response using MALDI-MS in conjunction with artificial neural networks in melanoma cell lines. A fascinating insight into the effects of biomimetic silica surfaces on the culture of melanoma cell lines using MALDI based proteomic analysis was given by Graham Hickman (Nottingham Trent University). Lauren Brown (Loughborough University) used a

combined miniaturised field asymmetric ion mobility spectrometry-MS approach for improvements in peptide detection.

During the lunchtime and afternoon break a poster session was given by delegates from across the region. A prize for the best student poster was awarded to Phillipa Hart of Sheffield Hallam University, whose poster described her research into skin irritation and sensitisation using direct tissue profiling and imaging by mass spectrometry.

A trade exhibition was held throughout the day by companies who support and sponsor the workshop. Their generous support means that the meeting was free to all delegates. Presentations were given by the two major sponsoring companies. Dr Francesco Tortorella of Bio-Rad Laboratories Ltd. introduced the Lucid Proteomics System, a new solution for peptide and protein profiling utilising retentate chromatography and MALDI-TOF-TOF MS, and Dr Martin Hornshaw of Thermo Scientific introduced the LTQ Orbitrap Velos, a next generation hybrid linear ion trap-orbitrap MS allowing “deeper” analysis of complex proteomic samples.

The meeting was, as usual, generously supported by the British Mass Spectrometry Society and the British Society for Proteome Research. As a way to thank the societies, the workshop has awarded all the first-author junior colleagues and students who presented a talk or a poster with a one year membership of the BSPR or the BMSS.

The ninth annual East Midlands Proteomics workshop will take place on Wednesday 3rd November 2010 and will be held at Loughborough University with Prof. Colin Creaser as Chair this year.