

Proteomics: advances in biomarker discovery

The BioPark Hertfordshire, Welwyn Garden City, AL7 3AX – 23rd Nov 2007

- 09:00 – 09:45 **Registration - Tea/Coffee**
- 09:45 – 10:00 **Introduction by the Chair: Dr Ayesha De Souza**
St. George's, University of London, UK
- 10:00 – 10:30 **Proteomic approaches to biomarker discovery and validation**
Dr Ashley Martin, CRUK Institute for Cancer Studies, University of Birmingham, UK
There is a great need to discover and validate clinically use cancer biomarkers. It is widely accepted the early detection and treatment of cancer is one the most important factors for patient survival. However, the available biomarkers are neither sensitive nor specific enough to be relied upon for routine diagnosis. Technological advances in mass spectrometry have allowed the serum proteome to be scrutinized in more detail and these approaches have been applied to biomarker discovery for a range of cancer types. The methodologies and associated problems will be discussed.
- 10:30 – 11:00 **Proteomic strategies for biomarker discovery in rheumatoid arthritis and osteoarthritis**
Dr Robin Wait, Kennedy Institute of Rheumatology, Imperial College London, UK
- 11:00 – 11:15 **Group photo**
11:15 – 11:45 **Morning Tea/Coffee**
- 11:45 – 12:15 **The use of proteomic technologies to searching for early biomarkers of pancreatic ductal adenocarcinoma**
Dr Mark Weeks, Institute of Cancer, UK
Pancreatic cancer is the fourth leading cause of cancer – related deaths in the western world. It is difficult to detect early can only can be cured if it is found at an early stage. There is a real need to find non-invasive disease markers that will enable earlier intervention and improve patient prognosis. Urine is easily an obtainable body fluid that may be a source of cancer biomarkers. The application of proteomic techniques to screen the urine of patients for changes occurring at the molecular level could potentially revolutionise the detection and management of pancreatic cancer, thus saving valuable lives.
- 12:15 – 12:45 **Cancer Biomarkers to predict clinical status and response to Immunotherapy**
Professor Robert Rees, Department of Life Sciences Nottingham Trent University Nottingham, UK
- 12:45 – 13:15 **Tour of the BioPark**
13:15 – 14:30 **Lunch**
- 14:30 – 15:00 **Proteomic approaches for the study of anticancer therapies**
Dr Lynn Cawkwell, The University of Hull, UK
We are utilising a combined approach based on transcriptomic and proteomic methods to further our understanding of a range of anticancer therapies (chemotherapy, radiotherapy, hormone therapy, antiangiogenic therapies). To identify biomarkers associated with radiotherapy resistance we utilised complementary techniques including expression microarrays, antibody microarrays and 2DE/MALDI-ToF analysis. Putative biomarkers were validated using immunoblotting and real-time PCR.
- 15:00 – 15:30 **A type 2 diabetes model investigated by proteomics and validated by the deltaDOT LFII technology**
Dr Judit Nagy, Imperial College, London, UK
Type 2 diabetes (T2D), which develops when the body produces only a limited amount of insulin, or when the insulin that is produced does not function properly, termed 'insulin resistance'. It is widely accepted that insulin binding to its receptor on target cells mediates downstream phosphorylation and activation of the insulin receptor substrate (IRS) family. Transgenic KO mice lacking IRS2 display many of the hallmarks of T2D in human subjects, which includes peripheral insulin resistance and a lack of compensatory β -cell expansion. In order to further elucidate the protein expression alterations within the liver in response to T2D we compared the hepatic protein expression of livers from WT and IRS2^{-/-} mice. Proteomics data was validated using capillary electrophoresis on deltaDOT's Peregrine.
- 15:30 – 16:00 **Chairman's summing up & close**