OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Translational & Personalized Medicine

August 05-07, 2013 Holiday Inn Chicago-North Shore, IL, USA

Evaluating the over-time prognostic performance of biomarkers for cancer prognoses using time-dependent receiver operating characteristic (ROC) curve

Robert McMaster
Vancouver Coastal Health Research Institute, Canada

Recent technical advances in quantitative RNA expression, proteomics and genomics have stimulated the discovery of biomarkers for various diseases as well as disease stratification. However, the translation of candidate biomarkers to clinical use through the stages of discovery, validation, and clinical implementation presents significant challenges requiring advanced technological and computational pipelines. We describe a computational biomarker pipeline, founded on the combination of advanced statistics and modeling, to distil the information contained in thousands of genes or proteins into an accurate classifier score with demonstrable clinical utility. Using a case study of cardiac transplantation we describe the different steps of this pipeline, starting from an unbiased discovery of peripheral blood cell RNA and plasma protein expression levels to the validation of a single biomarker scores based on panels of 5-10 genes and/or proteins. The computational methodologies proposed in this pipeline provide a reference to a wide range of biomarker studies for translation and implementation into clinical services.

Biography

Robert McMaster is the Director of the Immunity and Infection Research Centre at Vancouver Coastal Health Research Institute. He is also a Professor and the Head of the Department of Medical Genetics at the University of British Columbia, Director of Transplant Immunology for the British Columbia Transplant Research Institute, and a member of the Canadian Institutes of Health Research Microbiology and Infection Committee. He received an M.Sc. in Immunology from the University of British Columbia and a Ph.D. in Biochemistry from the University of Oxford. His research involves molecular immunology, transplant immunology, and immunogenetics.

rmcmaster@exchange.ubc.ca