

4th International Conference and Exhibition on

Metabolomics & Systems Biology

April 27-29, 2015 Philadelphia, USA

Integrated metabolite and RNA biomarker signatures of the late phase asthmatic response

Scott J Tebbutt

University of British Columbia, Canada

Some asthmatic individuals undergoing allergen inhalation challenge develop an isolated early response whereas others develop a dual response (early plus late response). The late response is associated with inflammation and chronic disease pathobiology, and it is important to develop biomarkers that can predict which individuals might be more susceptible to late phase responses. We are using transcriptomics (RNA-Seq) and metabolomics (mass spectrometry) of peripheral blood to identify molecular patterns that can discriminate allergen-induced isolated early from dual asthmatic responses. Peripheral blood was obtained prior to (pre-) and 2 hours post allergen inhalation challenge from 35 study participants. We are developing analytical tools such as sparse generalized canonical correlation discriminant analysis (SGCCDA) to derive classifier signatures that combine metabolite and RNA biomarkers of the late response.

Biography

Scott J Tebbutt is Associate Professor in the Department of Medicine, University of British Columbia, and Principal Investigator at the Centre for Heart Lung Innovation, St. Paul's Hospital, Vancouver, Canada. His research program is focused on molecular signatures of complex respiratory disease, including the early and late reactions in atopic asthma and allergic rhinitis. He is also Chief Scientific Officer of the Prevention of Organ Failure (PROOF) Centre of Excellence - a not-for-profit organization dedicated to moving research findings into health care, and focused on non-invasive biomarkers that can diagnose and/or predict organ failure (heart, lung and kidney). His responsibilities include the evaluation of new, high-performance technologies to improve biomarker discovery, as well as computational biology approaches to better deal with cell type heterogeneity. He holds a BA in Biochemistry from the University of Oxford and a PhD in Molecular Genetics from the University of East Anglia (Cambridge Laboratory, John Innes Centre).

scott.tebbutt@hli.ubc.ca

Notes: