



## SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by Dr. John Connolly:

Date: 4 January 2019, Friday

Time: 11:00AM – 12:00PM

Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

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**Speaker:** Prof. Chandra Mohan, Cullen Distinguished Professor & Vice Chair of Biomedical Engineering, University of Houston

**Title:** OMIC Insights on Autoimmunity

Biomarkers help physicians diagnose or monitor a disease and predict future disease course. Our laboratory focuses on a specific category of biomarkers, namely proteins. Unlike DNA and RNA molecules, proteins immediately mediate function, and are responsible for all “phenotypes” and disease manifestations. Hence, proteins have immense biomarker potential.

Our laboratory utilizes a variety of targeted proteomic platforms that have already proven to be very useful in uncovering novel biomarkers in a variety of body fluids in several chronic diseases, most notably in a couple of autoimmune diseases (including lupus, inflammatory bowel disease, systemic sclerosis and ankylosing spondylitis) and cancers (notably bladder cancer and colorectal cancer). In targeted proteomic approaches, specific ligands to the target proteins, such as antibodies or aptamers, are used as capture reagents to interrogate the presence and levels of the target protein biomarkers.

Proximity to crime scene is of utmost importance in biomarker screens. Our completed studies indicate that the closer one gets to the site of pathology, the higher the chance of uncovering disease biomarkers originating from the diseased tissue. Thus, for example, if the kidneys are diseased, urine emerges as a richer source of biomarkers compared to the blood from the same subjects. Likewise, in intestinal disease, the stools appear to be a richer source of potential biomarkers compared to blood. Hence, targeted proteomic screens of body fluids directly draining the diseased tissues are the richest sources of disease biomarkers, possibly originating directly from the diseased cells.

Once protein biomarkers are identified through the performance of comprehensive targeted proteomic screens, they are validated in larger patient cohorts using ELISA assays. Several of the identified biomarker proteins are being investigated for their roles in the pathogenesis of lupus and nephritis. Finally, our laboratory is interested in transforming the biomarker leads into diagnostic test panels or kits, suitable either for laboratory-based assays or for simple “point-of-care” (POC) assays (akin to pregnancy test strips) that the patient can perform in the comfort of his/her home. These studies are paving the way towards the identification of clinically useful markers for longitudinal disease tracking, while also pointing to potential therapeutic targets.

**Biography:**

Following his medical training in Pathology and Rheumatology at the National University of Singapore and the Singapore General Hospital in Singapore, Dr. Mohan undertook his doctoral thesis work focusing on the cellular immunology of lupus at Tufts University, Boston. His post-doctoral training had focused on the genetic analysis of murine lupus. As an independent investigator, his laboratory's research efforts have concentrated on elucidating the cellular, molecular, and genetic players leading to murine lupus, with corresponding translational studies in human lupus. His more recent work has focused on translating findings from basic biology towards the early diagnosis of end-organ involvement in autoimmune diseases. Dr. Mohan's ongoing studies are aimed at tapping leads from proteomic and metabolomic platforms to mine new biomarkers and targets in chronic rheumatic diseases.

In his recent tenure as an endowed Professor of Medicine at UT Southwestern Medical Center, Dr. Mohan held the MGee Chair in Arthritis Research and the Walter and Helen Bader Professorship in Autoimmunity. He currently holds the Cullen Distinguished Professorship at the University of Houston, in Houston, TX. Dr. Mohan is an elected member of the American Society of Clinical Investigation and the Henry Kunkel Society. He has published >200 articles, largely in the area of autoimmune diseases.

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***ALL ARE WELCOME*** (No registration required)

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