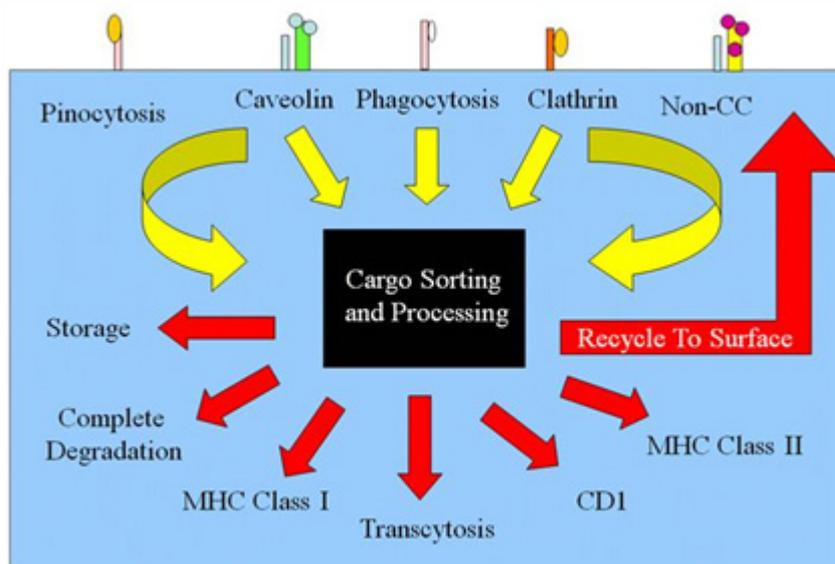


Research

My interests lie in establishing a productive translational research program focusing on Dendritic Cell (DC) based immunotherapy. DCs form a critical link between the innate and adaptive immune response. During infection, DCs recognize and capture invading pathogens. The innate immune recognition of these pathogens drives DCs down a specific path of maturation. These mature, specialized DCs are then able to polarize the adaptive response toward distinct antipathogenic effector states, such as Th1, Th2 or Th17. Recently, research has indicated that in addition to inducing immune responses, polarized DCs play a critical role in maintaining self-tolerance. My primary research goals are directed toward understanding the role of human dendritic cell subsets in the induction of immunity and tolerance and exploiting this knowledge for the generation of novel vaccines.



The mechanism of receptor mediated internalization and downstream cargo sorting determines the immunologic outcome

Translational Immunology

Program in Translational Immunology, Institute of Molecular and Cell Biology (IMCB)

The Program in Translational Immunology is dedicated to leveraging the basic research produced by A*Star scientists to make a quantifiable impact on patient care within Singapore. The program is based on three key principles 1. Fundamental studies in human immunology should have as their primary end point advances in medical care. 2. Translational immunology is a team effort between leaders, each contributing their own individual expertise. 3. Translational research is best achieved utilizing integrated, high quality core facilities and dedicated clinical support personnel.

The traditional academic model, with its individual focus and short term metrics of achievement

cannot efficiently engage in, and in many ways is the antithesis of, successful translational research.

Structure of the Program

The operational structure of the program has been specifically designed to bridge the key gaps in access and training which prevent the movement fundamental research to a translational and clinical setting.



1. Immunomonitoring The ability to fully integrate complex data from multiple analytical modalities and to understand this data in the context of ongoing clinical progression is the central challenge in the field of translational immunology. Professionally managed, technology focused core facilities are the most effective way to ensure the high-level of data quality and reproducibility required for translational research. The Comprehensive Immunomonitoring Platform utilizes genomic, proteomic and novel cell based assays from multiple, integrated cores, to provide a complete picture of the human immune response during the course of disease or therapy. The platform employs data management and mining solutions for the optimal integration and exploitation of large volumes of patient specific data. This systems based approach is utilized for biomarker discovery, identifying novel points of therapeutic intervention and clinical trials monitoring.
2. Biobanking The scale, scope and multi-disciplinary nature of translational research dictates that a large quantity of carefully prepared, quality-assesd biospecimens be available for study, and that the results of these studies be analyzed in the context of

well curated, associated clinical data. A well regulated biobank therefore forms the central infrastructure component of modern translational research.

3. Clinical Support The normal flow of clinical practice leaves little time to dedicate to research. Clinical support infrastructure is therefore a critical aspect of a successful translational research program. Staff support such as dedicated research nurses and scientific writers form an important bridge from the active clinical team to the scientific research group. The implementation of clinical research database solutions which facilitate the accumulation, curation and analysis of anonymised patient associated data forms a second important measure. These databases offer the hospital systems, clinical departments and physician practices the ability to create long term, secure data repositories for ongoing and future clinical research.

1. PI CV

Curriculum Vitae

Current position and past employment history

- 2013 - Present: Senior Principal Investigator, Institute of Molecular and Cell Biology
- 2011- Present : Director *ASPIRE*, A*Star Programme in Translational Research on Infectious Disease (<http://www.aspire.a-star.edu.sg>)
- 2010- Present: Director Programme in Translational Immunology
- 2010 - 2013: Principal Investigator, Singapore Immunology Network
- 2009 - 2010: Director for Research Initiatives, Baylor Research Institute
- 2008 - Present: Adjunct Associate Professor of Biomedical Studies, Baylor University Medical Center, Waco, TX
- 2005 - 2008: Adjunct Assistant Professor of Biomedical Studies, Baylor University Medical Center, Waco, TX
- 2003 - 2008: Assistant Investigator, Baylor Institute for Immunology Research, Dallas, TX
- 2001 - 2003: Research Associate, Dartmouth Medical School, Department of Immunology and Microbiology, with Drs. Paul K. Wallace and Michael W. Fanger

Academic Qualifications:

- 1995 - 2001: Graduate Student, Dartmouth Medical School Department of Biochemistry, in the lab of Dr. William Rigby
- 1994: Undergraduate Senior Research, Framingham State College, Department of Chemistry, Framingham, MA
- 1993: Undergraduate Senior Research, Framingham State College, Department of Biology, Framingham, MA
- 1993: Research Assistant, United States Army Research, Development and Engineering Labs, Department of Biotechnology, Natick, MA

2. Research Activities

Scientific Societies:

- American Cancer Society North Texas Region; Board of Directors, President of the Board
- American Association of Immunologists
- American Society for Reproductive Immunology
- Clinical Immunology Society
- Federation of Clinical Immunologists
- International Society for Interferon and Cytokine Research