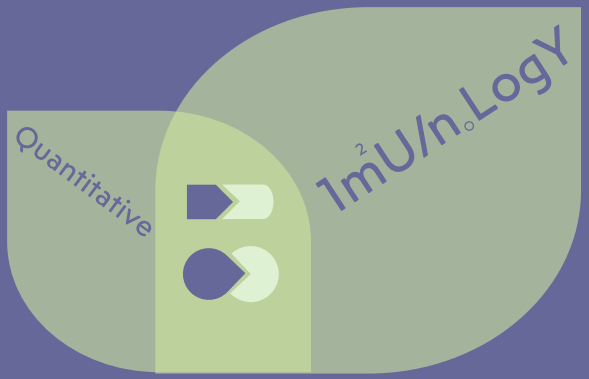
Quantitative Immunology

Introduction

This meeting of approximately 100 participants involves a structured scientific program comprising invited national and local speakers. We provide a unique two-day virtual conference that promotes the interaction of Research Students and Early Career Researchers with their Senior colleagues, in an effort to maximise the exposure of the next generation of immunology leaders. This year's theme is "Quantitative Immunology" with a focus on research highlights and cutting-edge techniques in quantitative & bioinformatics methods. We have attracted outstanding speakers as follows:



Day 1: Research Seminars from Invited Speakers

Imaging

- Professor Tri Phan (Garvan Institute)
- Dr Joanna Groom (WEHI)

Single Cell Analysis

- Associate Professor Fabio Luciani (UNSW)
- Professor Wei Shi (ONJCRI)

COVID & Respiratory Diseases

- Professor Stephanie Gras (La Trobe University)
- Professor Katherine Kedzierska (Doherty Institute)

Day 2: Online Workshops in Quantitative Immunology

- Lead by Dr Thomas Ashhurst (The University of Sydney)

IgV

Australian and New Zealand SOCIETY FOR IMMUNOLOGY INC.

Immunology Group of Victoria Master Class 2021:

An IgV & ASI SIG Collaboration

Monday 25th-Tuesday 26th October 2021

Convened by
Mireille Lahoud, Joshua Ooi, Thomas Ashhurst, Cindy Ma, David Lynn, Di Yu, Sarah Russell, Taylah Bennett, Xavier Sng

Sponsored by

BD · Miltenyi Biotec · AUSTRALIAN biosearch

Register at:
https://www.immunology.org.au/events/2021-IgV-Masterclass-on-Quantitative-Immunology/

Matchmaker for T cells: how to find The immunogenic peptide"

Professor Stephanie Gras

Head, Viral and Structural Immunology laboratory
Department of Biochemistry and Genetics, La Trobe Institute For Molecular Sciences (LIMS),
La Trobe University

Biography

Professor Stephanie Gras is the head of the Viral and Structural Immunology lab at La Trobe University. She is an NHMRC Senior Research Fellow and lead a lab of currently 16 staff/students within the department of Biochemistry and Genetics. Her lab focus on the T cell response towards infections, especially viruses (SARS-CoV-2, HIV and influenza), to understand the molecular mechanism of an effective immune response. She has successfully secured funding from the ARC, NHMRC, and MRFF, and published over 100 peer-review articles in top journals (Science, Nature, Nature Immunology, Immunity, Science Immunology).

"Dissecting cellular composition during CAR T-cell therapy using single cell multiomics"

Associate professor Fabio Luciani

Group leader in immunogenomics
Kirby Institute for Infection and immunity
Garvan Institute for Medical Research
Associate professor, School of Medical Sciences,
UNSW

Biography

Associate Professor Fabio Luciani is a senior researcher (NHMRC Research Fellow) in Systems Immunology at the School of Medical Sciences and at the Kirby Institute, UNSW Sydney. He has a PhD degree in Theoretical Immunology and Biophysics (2006) from the Humboldt University of Berlin (Germany). He is a theoretical physicist (Masters, Bologna University Italy) with training and research experience in immunology, genomics, statistics, computational biology, bioinformatics. His current research focuses on utilizing single cell technologies to study adaptive immune responses and cellular therapies against viral infections and cancer. He has developed and applied single cell genomics and systems immunology approaches to understand T cell dynamics.

"Lightsheet microscopy: seeing clearly, in context"

Dr Joanna Groom

Laboratory Head,
Immunology Division,
WEHI

Biography

Dr Groom's research is focused on how cellular interactions and communication control immune responses. This interest was piqued during her PhD, at the Garvan Institute, investigating the cellular signalling critical to lupus autoimmunity. During her postdoctoral fellowship at Harvard/Massachusetts General Hospital, Dr Groom found how chemokine regulation was critical for T cell priming. Dr Groom is a Laboratory Head in the Immunology Division at WEHI. Her research combines in vivo and 3D imaging methods with transcriptional analysis to discover how cellular interactions lead to protection against diverse pathogenic infections.

"Immune responses in COVID-19 respiratory tract and blood reveal mechanisms of disease severity"

Professor Katherine Kedzierska

Head, Human T cell Immunity Laboratory
The Peter Doherty Institute for Infection & Immunity
Department of Microbiology & Immunology,
University of Melbourne

Biography

Prof Katherine Kedzierska is Deputy Head of the Department of Microbiology and Immunology, University of Melbourne, at the Peter Doherty Institute for Infection and Immunity. Katherine received her PhD from Monash University in 2002 for her studies on the mechanisms underlying defective immune functions after HIV infection. Her PhD work was recognised by the 2001 Premier's Commendation for Medical Research, 2002 Monash University Mollie Holman Doctoral Medal and an NHMRC Peter Doherty Postdoctoral Fellowship to pursue her postdoctoral research with Laureate Professor Peter Doherty at University of Melbourne. Her postdoctoral work was focused on the early establishment of influenza-specific CD8+ T cell memory, TCR repertoire diversity and viral escape in a mouse model of influenza virus infection. In 2007, she got awarded an NHMRC RD Wright Fellowship and grant funding to establish her own research team. She is currently an NHMRC Investigator Fellow and a group leader of 'Human T cell Laboratory' in Department of Microbiology and Immunology at University of Melbourne. Her research interests include human T cell immunity to pandemic, seasonal and newly emerged influenza viruses, anti-viral immunity in the young, the elderly and Indigenous Australians, viral escape and generation of immunological memory in human influenza infection. She also studies human immunity to SARS-CoV2 in COVID-19 patients. Katherine is a recipient of a number of prestigious awards, including 2016 Australian Academy of Science Jacque Miller Medal, 2011 NHMRC Excellence Award and 2011 Scopus Young Researcher of the Year Award. She is a Co-Head of Indigenous Health at the Doherty Institute. In 2019, she was elected as a Fellow of the Australian Academy of Health and Medical Science (AAHMS).

"Use single cell RNA-seq to characterize immune cells in tumour microenvironment"

Professor Wei Shi

Head, Bioinformatics and Cancer Genomics Laboratory
Olivia Newton-John Cancer Research Institute

Biography

Prof Shi was recently recruited to the Olivia Newton-John Cancer Research Institute to establish the bioinformatics program. He is internationally recognised as an expert in developing cutting-edge bioinformatic methods for analysing high-throughput sequencing data, in particular RNA-seq data. The methods he developed for quantifying RNA-seq data have been widely adopted in the field. His research has produced significant impact as evidenced by the award of Web of Science Highly Cited Researcher in 2020 and 2018. Prof Shi also has a strong interest in utilising genomics data to better understand the function and differentiation of immune cells in health and disease.

"Intravital imaging for biological discovery"

Professor Tri Phan

Head, Intravital Microscopy Laboratory,
Garvan Institute of Medical Research

Biography

Tri is a clinical immunologist and basic scientist with interests in immunity, autoimmunity and cancer. He heads the IMAGE Lab and the ACRF INCITe Centre for Intravital Imaging at the Garvan Institute. He completed Medical School at Sydney University and his PhD at the Centenary Institute developing in vivo mouse models to study B cell responses with Robert Brink and Tony Basten. He post-doc'd at HHMI/UCSF where he learnt intravital two-photon microscopy with Jason Cyster. His work encompasses clinical genomics, CRISPR mouse models, intravital imaging and single cell multi-omic approaches to reveal the hidden complexities of life at the microscale.