

Young Investigator Symposium

Friday 8th November 2024 Monash Institute of Pharmaceutical Sciences Royal Parade, Parkville

Program-at-a-Glance 2024

FRIDAY 8 NOVEMBER		
Time	Session	Location
08:15 - 08:50	Registration (Includes transit time to Lecture Theatres)	Sisson's Foyer in Cossar Hall
08:50 - 09:00	Welcome and Acknowledgement of Country	Lecture Theatre 3
09:00 – 09:45	Session 1: Oral Presentations Theme: Modelling Host-Pathogen Interactions	Lecture Theatre 3
09:45 – 10:20	Session 2: Keynote Speaker, Dr Danika Hill - Laboratory Head, Department of Immunology, School of Translational Medicine, Monash University	Lecture Theatre 3
10:20 - 11:00	Morning Tea (Includes transit time from and to Lecture Theatres)	Cossar Hall
11:00 – 11:45	Session 3: Science Bites I	Lecture Theatre 3
11:45 – 12:30	Session 4: Oral Presentations Theme: Inflammation and Innate Immunity	Lecture Theatre 3
12:30 – 13:40	Lunch and Poster Session I (Includes transit time from and to Lecture Theatres)	Cossar Hall
13:40 – 14:25	Session 5: Oral Presentations Theme: Immunity at the Host-Pathogen Interface	Lecture Theatre 3
14:25 – 15:00	Session 6: Keynote Speaker, Prof Stephanie Gras - Laboratory Head and Deputy Director, La Trobe Institute for Molecular Science (LIMS), La Trobe University	Lecture Theatre 3
15:00 – 15:40	Afternoon Tea – Sponsored by BMG Labtech & QIAGEN (Includes transit time from and to Lecture Theatres)	Cossar Hall
15:40 – 16:25	Session 7: Science Bites II	Lecture Theatre 3
16:25 – 17:10	Session 8: Oral Presentations Theme: Adaptive Immunity and Therapeutics	Lecture Theatre 3
17:10 – 18:20	Evening Networking and Poster Session II - Sponsored by QIAGEN & BMG Labtech (Includes transit time from Lecture Theatres)	Cossar Hall
18:20 – 18:40	Prizes, Acknowledgements and Conclusion — Including Hartland Oration Prize winner for 2024 Presented by VIIN Co-Convenors: Prof Gilda Tachedjian and Prof Richard Ferrero	Cossar Hall

Friday 8 November: 8.15 am – 6.40 pm

Time	Session	Location
08:15 - 08:50	Registration (Includes transit time to Lecture Theatres)	Sisson's Foyer in Cossar Hall
08:50 - 09:00	Welcome and Acknowledgement of Country Chairs: TBC	Lecture Theatre 3
09:00 - 09:45	Session 1: Oral Presentations Theme: Modelling Host-Pathogen Interactions Chairs: TBC	Lecture Theatre 3
09:00	Using human intestinal organoids to study EPEC infection Eva Chan, Hudson Institute of Medical Research; Early Career Research	archer
09:10	Modelling & targeting cytokine storm in dengue-infected mice William Clow, Walter and Eliza Hall Institute of Medical Research; PhD Student	
09:20	Elucidating effects of single and multiple resistance mechanisms on Pseudomonas aeruginosa response to meropenem by mechanism-based mathematical modelling Dominika Fuhs, Monash Institute of Pharmaceutical Sciences; PhD Student	
09:30	Development of <i>ex vivo</i> models of nasal epithelia to elucidate the mechanism of <i>Bordetella bronchiseptica</i> -mediated blockade of influenza virus replication in the nasal cavity Lynn Nazareth, Australian Centre for Disease Preparedness, CSIRO; Early Career Researcher	
09:45 – 10:20	Session 2: Keynote Speaker – Dr Danika Hill Laboratory Head, Dept. of Immunology, Monash University Chairs: TBC	Lecture Theatre 3
09:50	What can sore throats teach us about future Streptococcus pyogenes vaccines? Danika Hill, Laboratory Head, Department of Immunology, School of Translational Medicine, Monash University	
10:10	Q&A	
10:20 - 11:00	Morning Tea (Includes transit time from and to Lecture Theatres)	Cossar Hall
11:00 – 11:45	Session 3: Science Bites I Chairs: TBC	Lecture Theatre 3
11:02	Protecting Australia's abalone: A herpesvirus (HaHV-1) defence strategy Jacinta Agius, Department of Microbiology, Anatomy, Physiology and Pharmacology, La Trobe University; PhD Student	
11:06	Functional assessment of the NOD2 signalling pathway in patients with inborn errors of immunity Ebony Blight, Department of Immunology, Monash University; PhD Student	
11:10	Transient inhibition of type I interferon enhances CD8+ T cell stemness and vaccine protection Benjamin Broomfield, Walter and Eliza Hall Institute of Medical Research; PhD Student	

11:14	Age-related differences in mRNA vaccine immunogenicity and adjuvancy Shivali Savita Chinni, School of Health and Biomedical Sciences, RMIT University; PhD Student	
11:18	Examining the neuropathogenesis of influenza A virus and SARS-CoV-2 Asmaa Hussein, University of Melbourne & Peter Doherty Institute for Infection and Immunity; PhD Student	
11:22	Female mice exhibit enhanced TLR7-dependent interferon and cytokine responses to respiratory syncytial virus infection Thomas Huttmann, School of Health and Biomedical Sciences, RMIT University;	
	Honours Student	
11:26	Anti-inflammatory effects of L-sulforaphane against SARS-CoV-2 Leanne Quah, Murdoch Children's Research Institute; Research Assistant	
11:30	Machine learning accelerates screening of diagnostic targets for <i>Neisseria</i> gonorrhoeae Andrey Verich, The Kirby Institute, University of New South Wales; PhD Student	
11:34		ion <i>in vivo</i>
11:45 – 12:30	Session 4: Oral Presentations Theme: Inflammation and Innate Immunity Chairs: TBC	Lecture Theatre 3
11:45	The overlap between lipid droplets and extracellular vesicles in viral infection Irumi Amarasinghe, La Trobe Institute for Molecular Science; PhD Student	
11:55	Divergent roles of necroptosis in skin inflammation and wound healing Holly Anderton, Walter and Eliza Hall Institute of Medical Research; Early Career Researcher	
12:05	Influenza A-induced inflammation in alveolar macrophages, but not epithelial cells, requires Toll-Like Receptor 7 Ameanah El-Hennawi, Centre for Respiratory Science and Health, RMIT University; Honours Student	
12:15		
12:30 - 13:40	Lunch and Poster Session I (Includes transit time from and to Lecture Theatres)	Cossar Hall
	See below for more information	
13:40 – 14:25	Session 5: Oral Presentations Theme: Immunity at the Host-Pathogen Interface Chairs: TBC	Lecture Theatre 3
13:40	Characterization of the immune paralysis of splenic macrophages following systemic inflammation	
	Laura Bahr, University of Melbourne & Peter Doherty Institute for Infection and Immunity; PhD Student	
13:50	extracellular vesicles that target the nucleus	
	Jack Emery, Hudson Institute of Medical Research; PhD Student	

14:00	Human unconventional T cells shape the early immune response to Group A Streptococcus Christopher Menne, Murdoch Children's Research Institute; Early Career Researcher	
14:10	Type 2 diabetes exacerbates fungal infection in mice, possibly by blunting the immune response Helen Stölting, Department of Biochemistry and Molecular Biology, Monash Biomedicine Discovery Institute, Monash University; Early Career Researcher	
14:25 – 15:00	Session 6: Keynote Speaker – Prof Stephanie Gras Deputy Director, La Trobe Institute for Molecular Science Chairs: TBC	Lecture Theatre 3
14:30	Immune signalling from a structural biology perspective Stephanie Gras, Laboratory Head and Deputy Director, La Trobe Institute for Molecular Science (LIMS), La Trobe University	
14:50	Q&A	
15:00 – 15:40	Afternoon Tea - Sponsored by BMG Labtech & QIAGEN (Includes transit time from and to Lecture Theatres)	Cossar Hall
15:40 – 16:25	Session 7: Science Bites II Chairs: TBC	Lecture Theatre 3
15:42		
15:46		
15:50		
15:54		
15:58	Deciphering and targeting of transcriptional drivers of T cell exhaustion Sining Li, University of Melbourne & Peter Doherty Institute for Infection and Immunity; PhD Student	
16:02	Developing precision RNA therapeutics for tuberculosis Jan Schaefer, Walter and Eliza Hall Institute of Medical Research; PhD Student	
16:06	Polyphenol rich sugarcane extract (PRSE) has potential antiviral activity against influenza A virus in vitro Caolingzhi Tang, Department of Microbiology and Immunology, University of Melbourne; PhD Student	
16:10	Predicting antibiotic effect on <i>Pseudomonas aeruginosa</i> with mechanismbased modelling where PK/PD indices cannot Alice Terrill, Monash Institute of Pharmaceutical Sciences; PhD Student	

16:14	Identification of B cell epitopes in serological exposure markers for improved Plasmodium vivax surveillance Hanqing Zhao, Walter and Eliza Hall Institute of Medical Research; PhD Student	
16:25 – 17:10	Session 8: Oral Presentations Theme: Adaptive Immunity and Therapeutics Chairs: TBC	Lecture Theatre 3
16:25	Leveraging the position of lymph node memory CD8+ T cells to enhance protective immunity Brigette Duckworth, Walter and Eliza Hall Institute of Medical Research & University of Melbourne; Early Career Researcher	
16:35	Reaction hijacking inhibition of tRNA charging enzymes of malaria parasites and bacteria Nutpakal Ketprasit, Bio21 Institute, Department of Biochemistry and Pharmacology, University of Melbourne; PhD Student	
16:45	The Medicines for Malaria Venture Pathogen Box compound MMV687794 impairs blood-stage <i>Plasmodium falciparum</i> invasion through potential inhibition of parasite lipid metabolism Dawson Ling, Walter and Eliza Hall Institute of Medical Research; Early Career Researcher	
16:55	The characterisation of human Vδ3+ γδT cells and the development of bispecific antibodies to harness their function Tina Zhang, University of Melbourne & Peter Doherty Institute for Infection and Immunity; PhD Student	
17:10 – 18:20	Evening Networking and Poster Session II - Sponsored by QIAGEN & BMG Labtech (Includes transit time from Lecture Theatres) See below for more information	Cossar Hall
18:20 - 18:40	Prizes, Acknowledgements and Conclusion – Including Hartland Oration Prize winner for 2024 Presented by VIIN Co-Convenors: Prof Gilda Tachedjian and Prof Richard Ferrero	Cossar Hall

Poster Session I: 12.30 pm – 1.40 pm

40.00 45.45			
12:30 – 13:40	Lunch and Poster Session I (Includes transit time from and to Lecture Theatres) Cossar Hall		
	Poster judging to be finalised by 13:25		
Poster Number	Poster Details		
1	Precise CRISPR insertion for deciphering immune interactions		
	Tim Muusse, Manufacturing Research Unit, CSIRO; Early Career Researcher		
2	Understanding the molecular mechanism of recognition of <i>Bacteroides fragilis</i> produced glycosphingolipids by Natural Killer T (NKT) cell receptors Vasudha Maddali, Department of Biochemistry and Molecular Biology, Monash University; PhD Student		
3	Crohn's associated invariant T cells recognise small molecules on CD1d		
J	Alison White, Peter Doherty Institute for Infection and Immunity & University of Melbourne; Honours Student		
4	Exploring trogocytosis between DC and B cells		
	Laura Almagro, Department of Biochemistry and Pharmacology, University of Melbourne; PhD Student		
5	Microfluidic solution for evaluating exhausted T cells' response toward PD-1 blockade efficacy		
	Wei-Che Chang, Integrated Photonics and Applications Centre (InPAC), RMIT University; PhD Student		
6	Discovering targets of long-lived humoral immunity for Group A Streptococcus vaccine design		
	Holly Fryer, Department of Immunology, Monash University; PhD Student		
7	Using rabies virus as a tool to understand the mechanisms of synapse formation in the brain		
	Steph Olliff, Deakin University & Australian Centre for Disease Preparedness, CSIRO; PhD Student		
8	Characterisation of novel cytokine interferon epsilon in the murine peritoneal cavity		
	Jasmine Chuah, Hudson Institute of Medical Research; PhD Student		
9	Prenatal and early life viral infection synergistically modify expression of cholinergic, dopaminergic and complement C4 genes in the hippocampus and prefrontal cortex in mice		
	Paneet Dhaliwal, Centre for Respiratory Science and Health, RMIT University; Honours Student		
10	Identification of metabolic candidates contributing to the comorbidity of diabetes, cardiopulmonary, and cardiovascular diseases		
	Zeki Ilker Kanbagli, Monash Institute of Pharmaceutical Sciences; Early Career Researcher		
11	Remodelling of the plasma proteome by sex hormones in a longitudinal model of feminizing gender-affirming hormone therapy		
	Ngoc Lan Nhi Nguyen, Murdoch Children's Research Institute; Masters Student		
12	Temporal and cross-serotype analysis of dengue T cell targets to inform vaccine design		
	Jingjing Liu, Department of Electrical and Electronic Engineering, University of Melbourne; PhD Student		

13	Immunogenic HLA-B*44:03 restricted peptide does not induce the same response in individuals with B*44 superfamily molecules	
	Samuel Liwei Leong, La Trobe Institute for Molecular Science; PhD Student	
14	COVID-19 results in broad autoantigen recognition post-infection, with anti- calprotectin autoantibodies associated with better clinical outcomes	
	Rhiane Moody, School of Health and Biomedical Sciences, RMIT University; Early Career Researcher	
15	Increased spike-specific IgG4 following has variable consequences on FcyR-mediated responses	
	Carissa Aurelia, Peter Doherty Institute for Infection and Immunity & University of Melbourne; PhD Student	
16	P-cresol sulfate acts on epithelial cells to reduce allergic airway inflammation	
	Rhiannon Grant, Department of Immunology, Monash University; PhD Student	
17	Association of <i>Plasmodium falciparum</i> specific afucosylated IgG with placental malaria protection	
	HongHua Ding, Peter Doherty Institute for Infection and Immunity; PhD Student	
18	Fc-dependent functional antibody responses in immunity to severe Plasmodium falciparum malaria in children	
	Grace Wright, Burnet Institute; Masters Student	
19	Naturally acquired functional antibody responses to <i>Plasmodium vivax</i> vaccine candidates are associated with protection against clinical malaria infections	
	Pailene Lim, Walter and Eliza Hall Institute of Medical Research; Research Assistant	
20	Developing machine learning models to understand CRISPR-Cas13b silencing principles	
	Khoa Nguyen, Department of Electrical and Electronic Engineering, University of Melbourne; PhD Student	
21	High throughput antimicrobial screening at CSIRO	
	Srinivasan Jayashree, Biomedical Program, Manufacturing Research Unit, CSIRO; Research Assistant	
22	Predictive and generative AI for drug discovery: Identification of SARS-CoV2 NSP14 inhibitors	
	Thomas Coudrat, Manufacturing Research Unit, CSIRO; Mid-Career Researcher	
23	IL-6 as diagnostic and prognostic biomarker meta-analysis studies	
	Hina Amer, School of Health and Biomedical Sciences, RMIT University; PhD Student	
24	Parasite-host metabolic cross-talk to detect malaria	
I		
	Teha Gebi, Monash Institute of Pharmaceutical Sciences; PhD Student	
25	How to catch a parasite red-handed: Looking for <i>Plasmodium falciparum</i>	
25		
25 26	How to catch a parasite red-handed: Looking for <i>Plasmodium falciparum</i> exported proteins in the infected hepatocyte using proximity ligation Elena Lantero-Escolar, Walter and Eliza Hall Institute of Medical Research; Early Career Researcher Defining targets and mechanisms of action of immunity against <i>Plasmodium</i>	
	How to catch a parasite red-handed: Looking for <i>Plasmodium falciparum</i> exported proteins in the infected hepatocyte using proximity ligation Elena Lantero-Escolar, Walter and Eliza Hall Institute of Medical Research; Early Career Researcher	

27	A comprehensive analysis of the regulatory mechanisms underlying the enzymes of the TCA cycle-glyoxylate shunt junction in <i>Mycobacterium tuberculosis</i> as a novel drug target for the age-old pandemic Evelyn Huang, School of Chemistry, University of Melbourne; PhD Student	
28	Defining the on-target activity of <i>P. falciparum</i> plasmepsin V peptidomimetic inhibitors Wenyin Su, Walter and Eliza Hall Institute of Medical Research; PhD Student	
29	Proteomics-based drug target identification in <i>Plasmodium falciparum</i> Yijia Ji, Monash Institute of Pharmaceutical Sciences; Honours Student	
30	Interrogating circulating immune cell methylome differences across the TB disease spectrum David Vincent Romero, Walter and Eliza Hall Institute of Medical Research; PhD Student	
31	Inhibition of type I interferon signalling during <i>Shigella flexneri</i> infection Anita Chaulagain, Monash University & Hudson Institute of Medical Research; PhD Student	
32	Metabolic mysteries of bat urine and faeces: A potential non-invasive tool to monitor flying foxes under different ecological conditions Avirup Sanyal, Griffith University & Australian Centre for Disease Preparedness, CSIRO; PhD Student	
33	Rifaximin and the evolution of daptomycin-resistant <i>Enterococcus faecium</i> Adrianna Turner, Department of Microbiology and Immunology, University of Melbourne; Early Career Researcher	
34	Establishing novel therapeutics for HTLV-1 Lewis Williams, Walter and Eliza Hall Institute of Medical Research; Early Career Researcher	
13:25	Judging to be finalised	
13:40	[Return to main program above]	

Poster Session II: 5.10 pm — 6.20 pm

		_
17:10 – 18:20	Evening Networking and Poster Session II — Sponsored by QIAGEN & BMG Labtech	Cossar Hall
	(Includes transit time from Lecture Theatres)	
	Poster judging to be finalised by 18:05	
Poster Number	Poster Details	
35	Decoding the effector-mediated dialogue between <i>Coxiella burnetii</i> and its host during infection Genevieve Samuel, Department of Microbiology, Monash Biomedicine Discovery Institute, Monash University; PhD Student	
36	Rational design of live bacterial therapeutics to clear <i>Klebsiella pneumoniae</i> from the gut Sher Maine Tan, Department of Microbiology and Immunology, University of Melbourne; PhD Student	
37	Exploring bacteriocins in infection-causing <i>Klebsiella</i> isolates Abhinaba Ray, Monash Biomedicine Discovery Institute, Monash University; PhD Student	
38	Identification and characterisation of <i>Cryptosporidium</i> effector proteins in host-pathogen interaction Lena Chng, Walter and Eliza Hall Institute of Medical Research; PhD Student	
39	Legionella pneumophila Dot/Icm effector triggers host heat shock response to facilitate intracellular replication Rachelia Wibawa, Hudson Institute of Medical Research; Early Career Researcher	
40	Ecology and diversity of Avian paramyxovirus 1, the causative agent of Newcastle disease, in Australian wild birds Sebastian Carmody, Australian Centre for Disease Preparedness, CSIRO & Peter Doherty Institute for Infection and Immunity, University of Melbourne; Honours Student	
41	Characterization of the structure and dynamics of oral polymicrobial biofilms Bindusmita Paul, Department of Biochemistry and Pharmacology, University of Melbourne; PhD Student	
42	Aztreonam and ciprofloxacin combination therapy yields synergistic results for resistant <i>Pseudomonas aeruginosa</i> strains Charlotte Picton, Monash Institute of Pharmaceutical Sciences; Honours Student	
43	The molecular mechanisms of axon degeneration in flavivirus infection Heather Irving, Australian Centre for Disease Preparedness, CSIRO; Masters Student	
44	Systemic inflammation in solid tumour malignancy patients impairs generation of <i>de novo</i> SARS-CoV-2 vaccine responses Ruth Purcell, Peter Doherty Institute for Infection and Immunity & University of Melbourne; PhD Student	
45	Unravelling the impact of changing ionizable lipids on mRNA-LNP vaccine pharmacokinetics and biodistribution Yuxiang Ren, Monash Institute of Pharmaceutical Sciences; PhD Student	
46	Developing novel lipid nanoparticles to reprogram lung macrophages Joshua Iscaro, Centre for Respiratory Science and Health, RMIT University; PhD Student	

47	Using big data for rational vaccine design to elicit broadly neutralizing antibodies against Hepatitis C virus	
	Haiyi Ye, Department of Electrical and Electronic Engineering, University of Melbourne; PhD Student	
48	Serological and molecular analyses define the antigenic evolution of the influenza B virus neuraminidase over 81 years	
	Thi Hoai Thu Do, Peter Doherty Institute for Infection and Immunity & University of Melbourne; PhD Student	
49	Nanospike surfaces: A new frontier in viral infection control	
	Samson Mah, School of Health and Biomedical Sciences, RMIT University & Manufacturing Research Unit, CSIRO; PhD Student	
50	iNKT cells develop through a 4-stage pathway in human thymus	
	Naeimeh Tavakolinia, Department of Microbiology and Immunology, University of Melbourne; PhD Student	
51	The influence of repeated influenza exposure on the CD8+ T cell response Cristina Triffon, Burnet Institute; Early Career Researcher	
52	Age-related changes in T cell early activation events	
	Anna Iasinskaia, School of Health and Biomedical Sciences, RMIT University; PhD Student	
53	2'-O-Methyl-guanosine 3-base RNA fragments mediate essential natural	
	TLR7/8 antagonism Sunil Sapkota, Hudson Institute of Medical Research; Early Career Researcher	
54	Mechanisms of mRNA vaccine adjuvancy in aged human dendritic cells	
	Valeeshah Rashid, School of Health and Biomedical Sciences, RMIT University; Honours Student	
55	Lipidation of Kv1.3 blocking peptide HsTX1[R14A] alters its pharmacokinetics and biodistribution to target tissues	
	Lihuan Lin, Monash Institute of Pharmaceutical Sciences; PhD Student	
56	Assessing immune competence to SARS-CoV-2 vaccination in patients with inflammatory bowel disease receiving anti-TNF treatment	
	Lachlan Bradbury, Department of Immunology, Monash University; Honours Student	
57	Evaluating immune response against SARS-CoV-2 in immunocompromised children	
	Leanne Quah, Murdoch Children's Research Institute; Research Assistant	
58	Uncovering the design principles of CRISPR/Cas13d as an effective antiviral strategy	
	Emily Hann, CSIRO & Deakin University; PhD Student	
59	Metabolic tracing in <i>P. falciparum</i> using a stable isotope labelling strategy Junwei Tang, Monash Institute of Pharmaceutical Sciences; PhD Student	
60	Dual plasmepsin IX and X inhibitors are refractory to resistance	
	Paola Favuzza, Walter and Eliza Hall Institute of Medical Research; Early Career Researcher	
61	Association of novel IgG3 allele with malaria infections in children from	
	Sepik region of Papua New Guinea Maria Saeed, Peter Doherty Institute for Infection and Immunity & University of Melbourne; PhD Student	

62	Antibody responses in children given the RTS,S malaria vaccine with and without drug chemoprevention		
	Alexander Harris, School of Translational Medicine, Monash University; PhD Student		
63	Investigating antibodies against cerebral malaria in children Yuchi Ji, Peter Doherty Institute for Infection and Immunity; Masters Student		
64	Dissecting germinal centre B cells induced by infection and vaccination during malaria Jessica Canning, Burnet Institute & Department of Immunology, Monash University; PhD Student		
65	Plasmodium falciparum-infected erythrocytes inhibit neutrophil extracellular trap formation Akachukwu Onwuka, Department of Infectious Diseases, University of Melbourne; PhD Student		
66	Blood biomarker discovery: High-dimensional blood immune-profiling in children with different disease settings showed major age-related changes in proportion of immune cells Sedi Jalali, Murdoch Children's Research Institute, Early Career Researcher		
67	Seasonal antigenic prediction of influenza A H3N2 using machine learning Syed Awais Wahab Shah, Department of Electrical and Electronic Engineering, University of Melbourne; Early Career Researcher		
18:05	Judging to be finalised		
18:20 – 18:40	Prizes, Acknowledgements and Conclusion Presented by VIIN Co-Convenors: Prof Gilda Tachedjian and Prof Richard Ferrero	Cossar Hall	