

# BIOMOLECULAR HORIZONS 2024: DISCOVER CREATE INNOVATE

22-26 SEPTEMBER 2024 Melbourne Convention and Exhibition Centre AUSTRALIA



26th Congress of the International  
Union of Biochemistry and  
Molecular Biology



17th Congress of the Federation  
of Asian & Oceanian Biochemists  
& Molecular Biologists

ComBio 22nd ComBio  
2024 MELBOURNE Conference

## CONGRESS PROGRAM

[WWW.BMH2024.COM](http://WWW.BMH2024.COM)

# DAILY PROGRAM

## SUNDAY 22 September 2024

<b>1000-1600</b>	<b>Pre Congress Workshops</b>
0900-1600	Career Development Forum – Room 203 & 204
1300-1500	Publishing high quality Higher Education Pedagogical Research to enhance your professional visibility (off site)
<b>1400-1900</b>	<b>Registration – Plenary Foyer</b>
<b>1700-1830</b>	<b>Grimwade Medal Public Lecture &amp; Reception</b>
	<i>Session supported by the University of Melbourne</i>
<b>Room</b>	Plenary Hall 2
	<b>Welcome to Country</b>
	<b>Grimwade Opening Remarks and Presentation</b>
<b>Chairs</b>	Ian van Driel & Laura Edgington-Mitchell
<b>Speaker</b>	<b>Brian Kobilka (Nobel Prize Winner), Stanford University USA</b>
<b>1830-1915</b>	<b>Refreshments – Plenary Foyer</b>

## MONDAY 23 September 2024 - Education Day & Indigenous Perspectives in Biomolecular Science Day

<b>0730-1900</b>	<b>Registration - Plenary Foyer</b>
<b>0900-0935</b>	<b>Congress Welcome &amp; Opening</b>
<b>Room</b>	Plenary Hall 2
0900-0935	<b>Congress Welcome &amp; Opening</b>
<b>0935-1020</b>	<b>Plenary 1 - Artificial Intelligence</b>
<b>Room</b>	Plenary Hall 2
<b>Chair</b>	Andy Hill
0935-1020	What are protein language models learning to do? <b>Sergey Ovchinnikov, Massachusetts Institute of Technology, USA</b>
<b>1020-1030</b>	<b>Session change over</b>
<b>1030-1120</b>	<b>Concurrent session 1 - Keynotes</b>
<b>KS1 - Bioinformatics, Computational Biology &amp; Omics – Plenary Hall 2</b>	
<b>Chairs</b>	Bernie Pope & Megan Maher
1030-1100	<i>Keynote speaker</i> PI3K $\alpha$ membrane binding is enhanced by ras and associated with altered membrane properties <b>Jane Allison, University of Auckland, New Zealand</b>
1100-1120	<i>Invited speaker</i> An integrative approach to transforming endogenous molecules into drugs <b>Peter Bond, Bioinformatics Institute (A*STAR), Singapore</b>
<b>KS2 - Molecular Basis of Disease – Room 210</b>	
<b>Chairs</b>	Justine Mintern & Jerome Le Nours
1030-1100	<i>Keynote speaker</i> Gpr43-mediated regulation of eosinophils in asthma <b>You-Me Kim, Korea Advanced Institute of Science &amp; Technology, Korea</b> <i>FAOBMB Kunio Yagi Lecture</i>
1100-1120	<i>Invited speaker</i> Streptococcus pyogenes pharyngitis elicits systemic and mucosal immune responses against key virulence factors in humans <b>Danika Hill, Monash University, Australia</b>

**KS3 - Indigenous Pathways - Room 211**

<b>Chairs</b>	Jordon Lima & Cam Raw
1030-1100	<i>Keynote speaker</i> (Re)claiming spaces: the incoming waves of Indigenous peoples, ethics and knowledge in biomolecular research and education <b>Phillip Wilcox, Otago University, New Zealand</b>
1100-1110	<i>Invited speaker</i> GWAS and beyond and precision medicine for Indigenous populations <b>Megan Leask, University of Otago, New Zealand</b>
1110-1120	<i>Invited speaker</i> What can we dig up from sedimentary ancient DNA? Co-designing the investigation of ancient environmental DNA in Australia <b>Dawn Lewis, University of Adelaide, Australia</b>

**KS4 - Microbial World - Room 212**

<b>Chairs</b>	Johnson Mak & Annemarie Laumaea
1030-1100	<i>Keynote speaker</i> Evolution of SARS-CoV-2 and beyond <b>Kei Sato, University of Tokyo, Japan</b>
1100-1120	<i>Invited speaker</i> Defining host factors underpinning life-threatening respiratory viral diseases <b>Katherine Kedzierska, University of Melbourne, Australia</b>

**KS5 - Education - Room 213**

<b>Chairs</b>	Yang Mooi Lim & Joon Kim
1030-1100	<i>Keynote speaker</i> Generative, dynamic model of a lysosome organelle <b>Drew Berry, Walter &amp; Eliza Hall Institute, Australia</b>
1100-1120	<i>Invited speaker</i> Student-centered learning in biochemistry and molecular biology - looking back and looking forward in the journal Biochemistry and Molecular Biology Education <b>Marilee Benore, University of Michigan-Dearborn, USA</b>

**KS6 - Biotechnology and Synthetic Biology - Room 219**

<b>Chairs</b>	Mibel Aguilar & Irene Yarovsky
1030-1100	<i>Keynote speaker</i> Chasing the functions of Mycobacterium tuberculosis glycolipids during infection using membrane biophysics and chemical proteomics <b>Shobhna Kapoor, Indian Institute of Technology Bombay, India</b> <i>FAOBMB Jisnuson Svasti Lecture</i>
1100-1120	<i>Invited speaker</i> Computational lipidomics of metastatic prostate cancers: lipidome changes, altered membrane properties and chemotherapy resistance <b>Megan O'Mara, University of Queensland, Australia</b>

1120-1150 **Morning Tea, Poster Viewing & Exhibition - Exhibition Hall**1150-1240 **Concurrent session 2 - Keynotes****KS7 - Biochemical Society Award Talk - Plenary Hall 2**

<b>Chairs</b>	James Murphy & Dario Alessi
1150-1220	<i>Keynote speaker</i> Kiss and tell. SMCHD1 - from discovery to a novel therapeutic target <b>Marnie Blewitt, Walter &amp; Eliza Hall Institute, Australia</b>
1220-1240	<i>Invited speaker</i> The HTLV-1c genomic landscape reveals host-virus interactions <b>Natasha Jansz, Mater Research, Australia</b>

# MONDAY

## KS8 - Molecular Physiology – Room 210

<b>Chairs</b>	Robyn Murphy & Nimna Perera
1150-1220	<i>Keynote speaker</i> Sustaining power: building energy networks in striated muscles <b>Brian Glancy, National Institutes of Health, USA</b>
1220-1240	<i>Invited speaker</i> Development of robust cell models of ATAD3-linked mitochondrial disease to dissect its function and explore disease pathways <b>Ann Frazier, Murdoch Children's Research Institute, Australia</b>

## KS9 - Indigenous perspectives: The interconnectedness of health – Room 211

<b>Chairs</b>	Jessica Buck & Jordon Lima
1150-1220	<i>Keynote speaker</i> Healthy country: re-writing the book on Australia <b>Michael-Shawn Fletcher, University of Melbourne, Australia</b>
1220-1230	<i>Invited speaker</i> A One Health approach to the control of zoonotic soil-transmitted helminths in remote Australian Indigenous communities <b>Cameron Raw, University of Melbourne, Australia</b>
1230-1240	<i>Invited speaker</i> Towards the development of a nematode expression system <b>Vanessa Sewell, University of New England, Australia</b>

## KS10 - Structural Biology and Biophysics – Room 212

	<i>Session supported by Thermofisher Scientific</i>
<b>Chairs</b>	Glenn King & Rosemary Cater
1150-1220	<i>Keynote speaker</i> Structural pharmacology of Nav and Cav channels <b>Nieng Yan, Tsinghua University, China</b>
1220-1240	<i>Invited speaker</i> Living on thin air: the structural basis of atmospheric hydrogen oxidation <b>Rhys Grinter, University of Melbourne, Australia</b>

## KS11 - Education – Room 213

<b>Chairs</b>	Nirma Samarawickrema & Daniel Dries
1150-1220	<i>Keynote speaker</i> The cultural politics of Indigenous knowledges and stem education <b>Elizabeth McKinley, University of Melbourne, Australia</b>
1220-1238	<i>Invited speaker</i> Supporting education focussed academics and the student voice <b>Merlin Crossley, University of New South Wales, Australia</b>
1238-1239	<i>Lightning talk</i> Exploring trans-Tasman students' biochemical literacy: a focus on building laboratory- and workshop-related self-management skills <b>Katherine Fernandez, Monash University, Australia</b>
1239-1240	<i>Lightning talk</i> First-year students' perceptions of learning biochemistry from case study workshops <b>Nathan Habila, Monash University, Australia</b>

**KS12 - Genomics, Gene Regulation and Epigenetics – Room 219**

<b>Chairs</b>	Adrienne Sullivan & Scott Berry
1150-1220	<i>Keynote speaker</i> Establishing chromatin architecture in early development <b>Wei Xie, Tsinghua University, China</b>
1220-1240	<i>Invited speaker</i> Hijacking developmental plasticity in cancers <b>Melanie Eckersley-Maslin, Peter MacCallum Cancer Centre, Australia</b>
<b>1240-1400</b>	<b>Lunch, Lightning Talks, Poster Viewing &amp; Exhibition - Exhibition Hall</b>
1250-1320	Lightning Talks - Theatre
1300-1400	Poster Presentations
<b>1400-1520</b>	<b>Concurrent session 3 – Symposia &amp; Keynote</b>

**SYM1 - Cell Signalling and Metabolism – Signalling of metabolic regulation – Plenary Hall 2**

<b>Chairs</b>	Benjamin Parker & Shin-Yee Fung
1400-1418	<i>Invited speaker</i> Torin1-sensitive phosphorylation sites on the metabolic regulator AMPK revealed by label-free mass spectrometry <b>Jon Oakhill, St Vincent's Institute of Medical Research, Australia</b>
1418-1436	<i>Invited speaker</i> Personalised phosphoproteomics <b>David James, University of Sydney, Australia</b>
1436-1450	Camkk2: at the interface of nutrient sensing and prostate cancer cell progression <b>Ayla Orang, Flinders University, Australia</b>
1450-1504	AI is induced by pathogen ligands to limit myeloid cell death and nlrp3 inflammasome activation <b>Kate Lawlor, Hudson Institute of Medical Research, Australia</b>
1504-1518	Functional phosphoproteomic analysis of insulin signalling in ageing bone <b>Mriga Dutt, University of Melbourne, Australia</b>

**SYM2 - Bioinformatics, Computational Biology and 'Omics – Proteomics – Room 210**

<b>Chairs</b>	Ho Jeong Kwon & Laura Dagley
1400-1418	<i>Invited speaker</i> Optimized dia-ms workflow for host cell proteins (hcp) characterization and quantification in bioreactors and top-down mass spectrometry analysis for monoclonal antibody production <b>Peter Hoffman, University of South Australia, Australia</b>
1418-1436	<i>Invited speaker</i> Mapping the influenza immunopeptidome: defining conserved targets for influenza immunity <b>Patricia Illing, Monash University, Australia</b>
1436-1450	Integrate, automate and interrogate proteomics workflows with MD 2.0 Dataset Service <b>Mansi Aggarwal, Mass Dynamics, Australia</b>
1450-1504	Quantitative proteomics in the diagnosis and characterisation of rare genetic diseases <b>Liana Semcesen, University of Melbourne, Australia</b>
1504-1518	Shining a light on inflammation <b>Cassandra Cianciarulo, La Trobe University, Australia</b>

# MONDAY

## KS13 - Indigenous Perspectives - Cancer and Immunology - Room 211

<b>Chairs</b>	Cameron Raw & Justine Clark
1400-1430	<i>Keynote speaker</i> Tītiro atu ki te taumata o te moana: understanding the broader impact of our biomolecular research <b>Kimiora Hēnare, University of Auckland, New Zealand</b>
1430-1445	<i>Invited speaker</i> Māu Tēnā Kīwai o te Kete, Māku Tēnei: Applications for precision medicine and third generation sequencing to Māori populations of Te Tairāwhiti Aotearoa <b>Jordon Lima, University of Otago, New Zealand</b>
1445-1500	<i>Invited Speaker</i> Development of in-depth analyses for Māori health in cancer and coronary artery disease <b>Helena Abolins-Thompson, University of Otago, New Zealand</b>
1500-1515	<i>Invited Speaker</i> Understanding the biomolecular profile of cancer in Indigenous children <b>Jessica Buck, Telethon Kids Institute, Australia</b>

## SYM3 - Structural Biology and Biophysics - Membrane biophysics and protein structure - Room 212

<b>Chairs</b>	Renaë Ryan & Shobhna Kapoor
1400-1418	<i>Invited speaker</i> Structural and molecular basis of choline uptake into the brain by FLVCR2 <b>Rosemary Cater, University of Queensland, Australia</b>
1418-1436	<i>Invited speaker</i> Effect of solvent-free environment on the conformations of intrinsically disordered protein <b>Kamendra Sharma, Indian Institute of Technology Bombay, India</b>
1436-1450	Combined imaging and multipoint fluorescence correlation spectroscopy for investigating morphogen dynamics in developmental processes <b>Laura Zoe Kreplin, Monash University, Australia</b>
1450-1504	The crocodile defensin CpoBD13 defines a novel mechanism of host defence peptide antifungal activity through pH-dependent phospholipid targeting and membrane disruption <b>Marc Kvensakul, La Trobe University, Australia</b>
1504-1518	The molecular details of an ovel phosphorylation dependent interaction between the MRN and SOSS DNA repair complexes <b>Liza Cubeddu, Western Sydney University, Australia</b>

## SYM4 - Genomics, Gene Regulation and Epigenetics - Transcriptional mechanisms - Room 213

<b>Chairs</b>	Tamas Fischer & Stephin Vervoort
1400-1418	<i>Invited speaker</i> Connecting transcriptional and post-transcriptional mRNA fate <b>Traude Beilharz, Monash University, Australia</b>
1418-1436	<i>Invited speaker</i> Comparative cofactor screens reveal the influence of transactivation domains and core promoters on the mechanisms of transcription <b>Charles Bell, Mater Research, Australia</b>
1436-1450	Transcriptomic analyses revealed anticancer effects of gamma-tocotrienol and delta-tocotrienol in three-dimensional multicellular tumour spheroid model of breast cancer <b>Wan Xin Goh, IMU University, Malaysia</b>
1450-1504	Menin inhibition as a novel epigenetic therapy for EZH2-driven diffuse large B-cell lymphoma <b>Rachel Woodhouse, Australian National University, Australia</b>
1504-1518	Extensive DNA methylome rearrangement during early lamprey embryogenesis <b>Allegra Angeloni, Garvan Institute, Australia</b>

<b>SYM5 - Education - Education Award talks - Room 217</b>	
<b>Chairs</b>	Kay Colthorpe & Andrew Moorhouse
1400-1418	Revolutionizing learning with blast.ar - a mobile app framework for biochemistry education <b>Nuruliza Roslan, University Sains Islam Malaysia, Malaysia</b>
1418-1436	<i>ASBMB SDR Scientific Education Award</i> Development of an open educational resource to improve quantitative literacy in incoming biomedical science students <b>Julian Pakay, La Trobe University, Australia</b>
1436-1454	<i>AuPS Education Award</i> Navigating the future of higher education: addressing challenges through innovation in technology <b>Pushpa Sinnayah, Victoria University, Australia</b>
1454-1512	Supporting our science students - a renewed focus on relationships for student success <b>Tracey Kuit, University of Wollongong, Australia</b>
<b>SYM6 - Cell, Developmental and Stem Cell Biology - Autophagy &amp; cell death in organismal homeostasis - Room 218</b>	
<b>Chairs</b>	Gemma Kelly & Julian Carosi
1400-1418	<i>Invited Speaker</i> Neuronal cell biology of PINK1/Parkin mitophagy <b>Michael Lazarou, Walter &amp; Eliza Hall Institute, Australia</b>
1418-1436	<i>Invited Speaker</i> Dominant-negative otulin mutation unveils novel mechanisms in inflammatory disease <b>Sophia Davidson, Hudson Institute of Medical Research Australia</b>
1436-1450	Specific liberation of polyunsaturated lysophospholipids during BAK-mediated pore formation in isolated mitochondria <b>Rachel Uren, Walter &amp; Eliza Hall Institute, Australia</b>
1450-1504	BECLIN1 is essential for gastrointestinal health. <b>Juliani Juliani, La Trobe University, Australia</b>
1504-1518	CLPB disaggregase dysfunction impacts mitochondrial QC machinery. <b>Megan Baker, University of Melbourne, Australia</b>
<b>SYM7 - Molecular Physiology - Molecular physiology of muscle - Room 219</b>	
<b>Chairs</b>	Brian Glancy & Robyn Murphy
1400-1418	<i>Invited Speaker</i> Compartmentalized glycogen metabolism in skeletal muscle: Influence of the activity of mitochondria, sarcoplasmic reticulum Ca <sup>2+</sup> ATPases, Na <sup>+</sup> -K <sup>+</sup> ATPases, and myosin ATPases <b>Joachim Nielsen, University of Southern Denmark, Denmark</b>
1418-1436	<i>Invited Speaker</i> A single session of high intensity interval training alters calcium homeostasis in human skeletal muscle. <b>Aldo Meizoso Huesca, University of Queensland, Australia</b>
1436-1450	Tmem161b is required for the maintenance of cardiac rhythm. <b>Jessica Briffa, University of Melbourne, Australia</b>
1450-1504	Manipulating muscle plasticity to improve dystrophic pathology in mouse models of Duchenne muscular dystrophy <b>Wenlan Li, University of Melbourne, Australia</b>
1504-1518	Unravelling the role of deubiquitinase ubiquitin-specific-protease-15 in skeletal muscle <b>Wayne Du, University of Melbourne, Australia</b>

# MONDAY

## SYM8 - Biotechnology and Synthetic Biology - Synthetic antimicrobials - Room 220

<b>Chairs</b>	Constance Baily & Sacha Pidot
1400-1418	<i>Invited Speaker</i> Structure activity relationships vs. structure-toxicity relations: a key battle in the design of lipopeptide antibiotics. <b>Tony Velkov, Monash University, Australia</b>
1418-1436	<i>Invited Speaker</i> Enzyme enabled synthesis of biaryl natural products. <b>Lauren Murray, Monash University, Australia</b>
1436-1450	Novel antibacterial aptamers against pseudomonas aeruginosa <b>Patrick Hock Tan, Monash University, Malaysia</b>
1450-1504	Targeting proteases for drugs and diagnostics for the three T's: Trypanosoma, Theileria and Thrichinella <b>Theresa Coetzer, University of KwaZulu-Natal, South Africa</b>
1504-1518	High throughput phenotypic platform to screen for novel anthelmintics. <b>Joseph Byrne, University of Melbourne, Australia</b>

## 1520-1550 Afternoon Tea & Poster Viewing - Exhibition Hall

## 1550-1710 Concurrent session 4 - Symposia

## SYM9 - Structural Biology and Biophysics - Machine learning in protein structure prediction - Plenary Hall 2

<b>Chairs</b>	Michael Healy & Isabelle Rouiller
1550-1608	<i>Invited Speaker</i> Folding forward: overcoming hurdles in implementing computational structural biology deep learning in Australia <b>Kate Michie, University of New South Wales, Australia</b>
1608-1626	<i>Invited Speaker</i> Leveraging structure prediction for protein optimisation workflows <b>Joe Kaczmarksi, Australian National University, Australia</b>
1626-1640	Probing conformational heterogeneity of trpv1: a comparison of state-of-the-art methods in cryo-em <b>Miro Astore, Simons Foundation, USA</b>
1640-1654	Understanding and exploiting RECQL4 interactions for targeted cancer prevention <b>Courtney Pilcher, Royal Melbourne Institute of Technology, Australia</b>
1654-1708	Peering into the unknown: unveiling a putative archaeal RNA virus (thv) <b>Raphael Caballes, University of New South Wales, Australia</b>

## SYM10 - Bioinformatics, Computational Biology and 'Omics - Metabolomics - Room 210

<b>Chairs</b>	Mike Barrett & Simone Rochfort
1550-1608	<i>Invited Speaker</i> Hexose homeostasis is essential for the virulence of Leishmania parasites. <b>Eleanor Saunders, University of Melbourne, Australia</b>
1608-1626	<i>Invited Speaker</i> Arginine metabolism is crucial to polymyxin-dependent resistance in Acinetobacter baumannii <b>Meiling Han, Monash University, Australia</b>
1626-1640	Spectrum of cellular lipids presented by the four human CD1 family of antigen presenting molecules <b>Adam Shahine, Monash University, Australia</b>
1640-1654	Harnessing multi-omics to explore parasitism at the molecular level <b>Tao Wang, University of Melbourne, Australia</b>
1654-1708	Biominalization of short chain organosulfonates: charting metabolic pathways by structural enzymology <b>Mihwa Lee, University of Melbourne, Australia</b>



<b>SYM11 - Indigenous Perspectives - Ethics and applications of molecular biology in Indigenous contexts (panel discussion) – Room 211</b>	
<b>Chairs</b>	Jessica Buck & Jordon Lima
1550-1608	<i>Invited Speaker</i> Towards precision cancer medicine for aboriginal health equity <b>Justine Clark, Telethon Kids Institute, Australia</b>
1608-1626	<i>Invited Speaker</i> Ethics and applications of molecular biology in Indigenous contexts: A case study of a collaborative deep phenotyping research project within a rural Māori community <b>Conor Watene-O'Sullivan, The Moko Foundation, New Zealand</b>
1626-1710	<i>Panel Discussion</i>
<b>SYM12 - Molecular Basis of Disease - Aging and cancer – Room 212</b>	
<b>Chairs</b>	Antonella Papa & Lev Kats
1550-1608	<i>Invited Speaker</i> Nuclear F-actin and the DNA damage response regulate telomerase recruitment in human cells. <b>Tracy Bryan, Children's Medical Research Institute, Australia</b>
1608-1626	<i>Invited Speaker</i> Altered lipid metabolism during the development of chemoresistance in pancreatic cancer cells. <b>Nigel Turner, Victor Chang Cardiac Research Institute, Australia</b>
1626-1640	Unlocking the anti-cancer potential of cholesterol lowering insights from breast, colorectal, and pancreatic cancer investigations <b>Mandeep Kaur, University of the Witwatersrand, South Africa</b>
1640-1654	Epithelial plasticity in cancer: lessons from 3D cancer models <b>Naisana Seyedasi, University of Sydney, Australia</b>
1654-1708	Targeting the nucleoli to treat cancer <b>Elaine Sanij, St Vincent's Institute of Medical Research, Australia</b>
<b>SYM13 - Microbial World - Molecular microbiology – Room 213</b>	
<b>Chairs</b>	Antje Blumenthal & Sacha Pidot
1550-1608	<i>Invited Speaker</i> A convergent evolutionary pathway attenuating cellulose production drives enhanced virulence of some bacteria. <b>Mark Schembri, University of Queensland, Australia</b>
1608-1626	<i>Invited Speaker</i> Transmission blocking nanobodies against malaria parasites <b>Wai-Hong Tham, Walter &amp; Eliza Hall Institute, Australia</b>
1626-1640	Dysregulating Streptococcus pneumoniae zinc homeostasis to break antibiotic resistance <b>Christopher McDevitt, University of Melbourne, Australia</b>
1640-1654	Reaction hijacking of aminoacyl-tRNA synthetases as a new antimalarial strategy <b>Stanley Xie, Monash University, Australia</b>
1654-1708	Uncovering genomic features influencing raffinose metabolism in Streptococcus pneumoniae clinical isolates <b>Kate Whyte, University of Adelaide, Australia</b>

# MONDAY

## SYM14 - Education - Education Short Talks - Room 217

<b>Chairs</b>	Tracey Kuit & Kathryn Jones
1550-1603	Hitting an iceberg: The impact of generative artificial intelligence (GenAI) on academic integrity in undergraduate science education <b>Reece Sophocleous, University of Wollongong, Australia</b>
1603-1616	Molecular biologist AI bots: what works, what doesn't <b>Alice Huang, University of Sydney, Australia</b>
1616-1629	Learning as a verb: a framework to engage students with hands-on active learning in physiology <b>Christian Moro, Bond University, Australia</b>
1629-1642	Mapping and embedding the core concepts of physiology across the curriculum. <b>Kathy Tangalakis, Victoria University, Australia</b>
1642-1655	Professional identity of biomedical science students <b>Kay Colthorpe, University of Queensland, Australia</b>
1655-1708	Revolutionizing education: enhancing practical skills and adapting to technological challenges in anatomy and developmental biology. <b>Sonja McKeown, Monash University, Australia</b>

## SYM15 - Genomics, Gene Regulation and Epigenetics - Non-coding genome - Room 218

<b>Chairs</b>	Cecile King & Selene Fernandez Valverde
1550-1608	<i>Invited Speaker</i> Confined environments induce noncoding-rna paraspeckle condensates. <b>Archa Fox, University of Western Australia, Australia</b>
1608-1626	<i>Invited Speaker</i> Using genetics to identify novel lncrna therapeutics for breast cancer <b>Juliet French, QIMR Berghofer, Australia</b>
1626-1640	Exploring dysregulated long non-coding RNA expression in animal models of drug addiction <b>Sonia Hesam-Shariati, University of New South Wales, Australia</b>
1640-1654	Paternal SARS-CoV-2 infection alters sperm noncoding RNA profiles and increases anxiety in offspring. <b>Elizabeth Kleeman, The Florey Institute, Australia</b>
1654-1708	RNA isoform landscape in human ipsc-derived microglia in neurodevelopmental disorder context <b>Rugile Matuleviciute, King's College London, United Kingdom</b>

## SYM16 - Molecular Physiology - Neurophysiology - a focus on new techniques - Room 219

<b>Chairs</b>	Garron Dodd & Gary Housley
1550-1608	<i>Invited Speaker</i> Brain-wide exploration of behaviorally relevant astrocyte signaling <b>Jun Nagai, Riken Centre for Brain Research, Japan</b>
1608-1626	<i>Invited Speaker</i> Using two-photon calcium imaging to probe neural encoding during behaviour <b>Lucy Palmer, Florey Institute, Australia</b>
1626-1640	TRPC channels as a druggable target against secondary brain injury expansion <b>Georg Von Jonquieres, University of New South Wales, Australia</b>
1640-1654	Biochemical signatures of motor neuron disease and frontotemporal dementia involve a transient protein folding response in the cortex. <b>Rebecca San Gil, University of Queensland, Australia</b>
1654-1708	Novel peptide therapeutics for Alzheimer's disease <b>Dorothy Wai, Monash University, Australia</b>

<b>SYM17 - Biotechnology and Synthetic Biology - Nanomaterials for biomedicine and biotechnologies - Room 220</b>	
<b>Chairs</b>	Nevena Todorova & Ravi Shukla
1550-1608	<i>Invited Speaker</i> Deciphering the gold-nano-bio interface through computational molecular simulations <b>Patrick Charchar, Royal Melbourne Institute of Technology, University, Australia</b>
1608-1626	<i>Invited Speaker</i> Low volume, high throughput polymer syntheses for accelerating discovery of novel biomaterials. <b>Jonathan Yeow, University of New South Wales, Australia</b>
1626-1640	<i>Invited Speaker</i> Nanoescapology: Understanding therapeutic trafficking in cells. <b>Angus Johnston, Monash University, Australia</b>
1640-1654	Using nanobodies to improve drug delivery across the blood-brain barrier <b>Gabby Watson, Walter &amp; Eliza Hall Institute, Australia</b>
1654-1708	Development of a generalisable tryptophan-optimised quenchbody biosensor based on a synthetic nanobody library. <b>Jordan Cater, University of Wollongong, Australia</b>
1710-1720	<b>Session change over</b>
1720-1805	<b>Plenary 2 - Indigenous Perspectives in Biomolecular Science</b> <i>Session supported by CSL</i>
<b>Room</b>	Plenary Hall 2
<b>Chair</b>	Elizabeth McKinley
1720-1805	Developing novel chimeric antigen receptor therapies for glioma <b>Misty Jenkins, Walter &amp; Eliza Hall Institute, Australia</b>
1805-1810	Closing remarks on Indigenous Perspectives in Biomolecular Science Day <b>Jessica Buck, Jordon Lima, Cameron Raw</b>
1810-2000	<b>Welcome Reception - Exhibition Hall</b>



# DAILY PROGRAM

## TUESDAY 24 September 2024 – RNA Technology Day

<b>0730-0815</b>	<b>BioNTech Industry Breakfast Session</b>
Room	Meeting Room 217
	Accelerating the clinical translation of local mRNA breakthroughs and technologies into vaccines and therapeutics (advance booking required)
<b>0730-1800</b>	<b>Registration – Plenary Foyer</b>
<b>0830-0915</b>	<b>Plenary 3 - RNA Technology</b>
Room	Plenary Hall 3
	<i>Session supported by Moderna Australia</i>
Chair	Archa Fox
Speaker	Development of nucleoside-modified mRNA vaccines <b>Norbert Pardi, University of Pennsylvania, USA</b>
<b>0915-1000</b>	<b>Plenary 4 - RNA Technology</b>
Room	Plenary Hall 3
	<i>Session supported by mRNA Victoria</i>
Chairs	Traude Beilharz & Salvatore Russello
Panel	The Future of RNA <b>Amanda Caples, Victoria's Lead Scientist, Australia</b> <b>Catherine Mills, Monash Bioethics Institute, Australia</b> <b>Steve Rockman, CSL/Seqiris, Australia</b> <b>Claire Borg, Moderna, Australia</b>
<b>1000-1030</b>	<b>Morning Tea &amp; Poster Viewing – Exhibition Hall</b>
<b>1030-1135</b>	<b>Concurrent session 5 - Keynotes</b>
<b>KS14 - RNA Technology Day – Plenary Hall 3</b>	
Chairs	Claire Borg & Tim Mercer
1030-1100	<i>Keynote Speaker</i> Studying RNA structures to understand RNA function <b>Yue Wan, Genome Institute of Singapore, Singapore</b> <i>FAOBMB Takashi Murachi Lecture</i>
1100-1118	<i>Invited Speaker</i> Expanding neutralizing antibody protection in mice with a polyvalent SARS-CoV-2 mRNA vaccine expressing three linked-RBD domains from different viral variants <b>Damian Purcell, University of Melbourne, Australia</b>
1118-1132	High-accuracy RNA integrity definition for unbiased transcriptome comparisons with INDEGRA <b>Nikolay Shirokikh, Australian National University, Australia</b>

**KS15 - Molecular Physiology Short Talks – Room 210**

<b>Chairs</b>	Paul Gregorevic & Noni Frankenberg
1030-1040	Myocardial protein expression correlates of diastolic function in physiologic & pathologic cardiac conditions <b>Johannes Janssens, Cedars-Sinai Medical Center, USA</b>
1040-1050	Maternal diet high in linoleic acid alters renal branching morphogenesis and mTOR/AKT signaling genes. <b>Deanne Hryciw, Griffith University, Australia</b>
1050-1100	Phosphoproteomics-directed manipulation reveals SEC22B as a hepatic signaling node governing metabolic actions of glucagon. <b>Yuqin Wu, Monash University, Australia</b>
1100-1110	<i>To be confirmed</i> Structure and function of the SIT1 proline transporter linked to iminoglycinuria <b>Irina Lotsaris, University of Sydney, Australia</b>
1110-1120	Complex IV - a new understanding in muscle wasting diseases. <b>Ryan Bagaric, Victoria University, Australia</b>
1120-1130	Characterization of novel inhibitors for triple negative breast cancer: four needles in a haystack <b>Jo-Anne de la Mare, Rhodes University, South Africa</b>

**KS16 - Cell Signalling and Metabolism – Room 211**

<b>Chairs</b>	Peter Mace & Kate Quinlan
1030-1100	<i>Keynote Speaker</i> Protein kinase C unbalanced: dysregulated signalling in cancer vs Alzheimer's disease. <b>Alexandra Newton, University of California, USA</b>
1100-1118	<i>Invited Speaker</i> PPTC7 antagonizes mitophagy by promoting BNIP3 and NIX degradation via SCFFBXL4. <b>Julia Pagan, University of Queensland, Australia</b>
1118-1132	Dissecting the cellular effects of psychedelics on serotonin receptor signalling <b>Gregory Redpath, University of New South Wales, Australia</b>

**KS17 - Structural Biology and Biophysics – Room 212**

<b>Chairs</b>	Brett Collins & Alisa Glukhova
1030-1100	<i>Keynote Speaker</i> The role of protein dynamics in G protein coupled receptor signalling. <b>Brian Kobilka, Stanford University, USA</b>
1100-1118	<i>Invited Speaker</i> Structural insights into targeting class B1 GPCRs for metabolic diseases <b>Denise Wootten, Monash University, Australia</b>
1118-1132	Mechanical activation opens a lipid-lined pore in OSCA ion channels. <b>Charles Cox, Victor Chang Cardiac Research Institute, Australia</b>

**KS18 - Genomics, Gene Regulation and Epigenetics – Room 213**

<b>Chairs</b>	Rhys Allan & Melanie Eckersley-Maslin
1030-1100	<i>Keynote Speaker</i> Rules of engagement for mitotic chromosome folding machines <b>Job Dekker, University of Massachusetts, USA</b>
1100-1118	<i>Invited Speaker</i> Transposable elements reorganise the 3D genome structure in CDK4/6 inhibitors resistant breast cancer. <b>Joanna Achinger-Kawecka, Garvan Institute, Australia</b>
1118-1132	Next generation super-resolution microscopies of nuclear structures <b>Ashley Rozario, La Trobe University, Australia</b>

## TUESDAY

## KS19 - Cell, Developmental and Stem Cell Biology - Room 219

<b>Chairs</b>	Sharad Kumar & Leonie Quinn
1030-1100	<i>Keynote Speaker</i> Supersulfides as an emerging biomolecule for stress response <b>Hozumi Motohashi, Tohoku University, Japan</b> <i>FAOBMB Osamu Hayaishi Lecture</i>
1100-1118	<i>Invited Speaker</i> Caspase-2 in oxidative stress and age-related cancer <b>Loretta Dorstyn, University of South Australia, Australia</b>
1118-1132	Using zebrafish as a model to tackle calcific valve disease <b>Renee Chow, Australian Regenerative Medicine Institute, Australia</b>

## 1135-1145 Session change over

## 1145-1250 Concurrent session 6 - Keynotes

## KS20 - RNA Technology Day - Plenary Hall 3

<b>Chairs</b>	Colin Pouton & Chun-Xia Zhao
1145-1215	<i>Keynote Speaker</i> Innovation in mRNA technology for public health interventions: How meaningful is this for the Africa vaccine manufacturing vision 2040? <b>Petro Terblanche, Afrigen Biologics &amp; Vaccines, South Africa</b>
1215-1233	<i>Invited Speaker</i> Transient inhibition of type I interferon enhances CD8+ T cell stemness and vaccine protection. <b>Joanna Groom, Walter &amp; Eliza Hall Institute, Australia</b>
1233-1247	The landscape of on-target, off-target, and collateral activity of various CRISPR-Cas13 orthologs in human cells <b>Honglin Chen, Peter MacCallum Cancer Centre, Australia</b>

## KS21 - Precision Medicine - Room 210

	<i>Session supported by University of Queensland</i>
<b>Chairs</b>	Dominic Ng & Kate Sutherland
1145-1215	<i>Keynote Speaker</i> Singapore national precision medicine strategy <b>John Chambers, Nanyang Technological University, Singapore</b>
1215-1229	Help or hindrance: A common gain-of-function MLKL polymorphism. <b>Sarah Garnish, Walter &amp; Eliza Hall Institute, Australia</b>
1229-1243	Development of a precision oncology program focused on a novel therapeutic target in triple negative breast cancer. <b>Anderly Chüh, Monash Biomedicine Discovery Institute, Australia</b>

## KS22 - Cell, Developmental and Stem Cell Biology - Room 211

<b>Chairs</b>	Leonie Quinn & Sharad Kumar
1145-1215	<i>Keynote Speaker</i> Deciphering stem cell roles in driving gastric cancer. <b>Nick Barker, A*STAR IMCB, Singapore</b>
1215-1233	<i>Invited Speaker</i> Plasticity of stem cells in intestinal regeneration and cancer <b>Helen Abud, Monash University, Australia</b>
1233-1247	DNA topoisomerase III Alpha (top3a) is essential for Vegfc-driven lymphatic endothelial cell proliferation in zebrafish. <b>Kazuhide Okuda, La Trobe University, Australia</b>

**KS23 - Molecular Basis of Disease – Room 212**

<b>Chairs</b>	Mark Schembri & Dimitra Chatzileontiadou
1145-1215	<i>Keynote Speaker</i> Novel biomimetic cellular nanoparticles (CNP) for the treatment and prevention of antibiotic-resistant bacterial infections and sepsis <b>Victor Nizet, University of California San Diego, USA</b>
1215-1233	<i>Invited Speaker</i> Permanent tenancy or a bad case of squatting? - Tolerance to Haemophilus influenzae infection in human epithelial cells <b>Ulrike Kappler, University of Queensland, Australia</b>
1233-1247	Regulation of the composition of bacterial membrane vesicles and their ability to mediate pathogenesis and antimicrobial resistance <b>Maria Kaparakis-Liaskos, University of Melbourne, Australia</b>

**KS24 - Molecular Physiology – Room 213**

<b>Chairs</b>	Adam Rose & Severine Lamon
1145-1215	<i>Keynote Speaker</i> Genome-scale models of transcriptional metabolic wiring and rewiring <b>Marian Walhout, University of Massachusetts, USA</b>
1215-1233	<i>Invited Speaker</i> Protecting the nervous system across generations with the maternal diet <b>Roger Pocock, Monash University, Australia</b>
1233-1247	Insulin increases blood flow in the cortex and hippocampus in healthy rats and these effects are lost after 14 days of high fat diet intake. <b>Dino Premilovac, University of Tasmania, Australia</b>

**KS25 - G.N. Ramachandran Lecture – Room 219**

<b>Chairs</b>	Sheila Nathan & Terry Piva
1145-1225	Design of efficacious, thermotolerant, viral vaccine formulations <b>Raghavan Varadarajan, Indian Institute of Science, India</b>
1225-1245	Structural and functional analyses of Burkholderia pseudomallei BPSL1038 reveals a novel Cas-2/VapD sub-family <b>Chyan Leong Ng, Universiti Kebangsaan, Malaysia</b>

**1250-1430 Lunch, Lightning Talks, Poster Viewing, Exhibition – Exhibition Hall**

1300-1330 Lightning Talks –Theatrette

**1315-1415 Lunchtime Technical Workshops****Workshop 1 - Protein structure prediction and applications – Room 210**

Chair	Martin Stone
Speakers	<b>Michael Healy, University of Queensland, Australia</b> <b>Janesha Maddumage, La Trobe University, Australia</b>

**Workshop 2 - Synchrotron Science – Room 211**

	<i>Session supported by ANSTO</i>
Chair	Alan Riboldi-Tunncliffe
Speakers	<b>Christopher Szeto, ANSTO, Australia</b> <b>Annmaree Warrender, ANSTO, Australia</b>

**Workshop 3 - The Future of Publishing – Room 212**

	<i>Session supported by Portland Press</i>
Chairs	Alisa Glukhova & Merlin Crossley
Speakers	<b>Benjamin Parker, University of Melbourne, Australia</b> <b>Pamela Silver, Harvard University, USA</b>

## TUESDAY

1430-1550 Concurrent session 7 - Symposia	
<b>SYM18 - RNA Technology Day - RNA biology - Plenary Hall 3</b>	
<b>Chairs</b>	Irina Voigneau & Thomas Preiss
1430-1448	<i>Invited Speaker</i> Exploring microbial dark matter for RNA biotechnology <b>Gavin Knott, Monash University, Australia</b>
1448-1506	<i>Invited Speaker</i> Targeting long non-coding RNAs as new therapeutic approach in oncology <b>Sarah Diermeier, University of Otago, New Zealand</b>
1506-1520	Targeting RNA using fragment-based drug screening <b>Brooke Kwai, Monash Institute of Pharmaceutical Sciences, Australia</b>
1520-1534	Production of fully functional multimeric RNA aptamers in E. coli <b>Tayyaba Younas, Monash University, Australia</b>
1534-1548	Characterisation and engineering of thermophilic RNA ligases <b>Joanna Hicks, University of Waikato, New Zealand</b>
<b>SYM19 - Cell Signalling and Metabolism - Metabolism in health and disease - Room 210</b>	
<b>Chairs</b>	Kyle Hoehn & Nigel Turner
1430-1448	<i>Invited Speaker</i> Dimethyl fumarate is a translational candidate for the treatment of Duchenne muscular dystrophy. <b>Emma Rybalka, Victoria University, Australia</b>
1448-1506	<i>Invited Speaker</i> Metabolic tug-of-war: deciphering the role of glucagon and insulin in regulating postprandial glucose metabolism. <b>Clinton Bruce, Deakin University, Australia</b>
1506-1520	Leveraging cell signalling in nutrient stressed environments as a strategy to regulate cancer cell proliferation <b>Janni Petersen, Flinders University, Australia</b>
1520-1534	Human plasma is enriched in mitochondrial proteins following an acute bout of endurance exercise. <b>Glenn Wadley, Deakin University, Australia</b>
1534-1548	Branched-chain $\alpha$ -keto acids impair insulin secretion via redirection of glucose metabolism to LDHA-lactate axis. <b>Huige Lin, Hong Kong Polytechnic University, Hong Kong</b>
<b>SYM20 - Molecular Basis of Disease - Vaccines - Room 211</b>	
<b>Chairs</b>	Erin Brazel & Mark Walker
1430-1448	<i>Invited Speaker</i> Combo#5 mRNA group A Streptococcus vaccine elicits robust B and T cell immune responses in preclinical models. <b>Gabrielle Belz, University of Queensland, Australia</b>
1448-1506	<i>Invited Speaker</i> A novel human lymph node explant model to determine the mechanism of action of viral adjuvanted protein- and RNA- vaccines. <b>Tony Cunningham, The Westmead Institute for Medical Research, Australia</b>
1506-1520	Human immunodeficiency virus-1 (HIV-1) neutralisation profiles in HIV-1 viremia suppressed Nepalese individuals. <b>Anurag Adhikari, La Trobe University, Australia</b>
1520-1534	Visualizing host pathogen interactions using electron cryotomography. <b>Manasi Arcot Anil Kumar, University of Melbourne, Australia</b>
1534-1548	SARS-CoV-2 induces TGF- $\beta$ signalling via Spike. <b>Nicholas Gracie, University of Sydney, Australia</b>



<b>SYM21 - Structural Biology and Biophysics - Structure-guided drug design - Room 212</b>	
<b>Chairs</b>	Joon Kim & Michael Parker
1430-1448	<i>Invited Speaker</i> Exploiting cancer metabolism: a structural focus on malic enzyme inhibitors <b>Ben Krinkel, University of Auckland, New Zealand</b>
1448-1506	<i>Invited Speaker</i> Structure/function analyses of the thrombopoietin receptor. <b>Nadia Kershaw, Walter &amp; Eliza Hall Institute, Australia</b>
1506-1520	Mechanistic enzymology of carbon flux regulation in Mycobacterium tuberculosis <b>Ivanhoe Leung, University of Melbourne, Australia</b>
1520-1534	Bivalent cyclic peptides display unparalleled specificity as BET-bromodomain inhibitors. <b>Joel Mackay, University of Sydney, Australia</b>
1534-1548	Structural insights into self-compartmentalization of C-Terminal protease CTP-A from Helicobacter pylori <b>Shannon Wing Ngor Au, Chinese University of Hong Kong, China</b>
<b>SYM22 - Genomics, Gene Regulation and Epigenetics - Developmental gene regulation and enhancers - Room 213</b>	
<b>Chairs</b>	Wei Xie & Emily Wong
1430-1448	<i>Invited Speaker</i> A symphony of regulatory factors at the Nanog locus during gene bursting in stem cells <b>Mathias Francois, The Centenary Institute, Australia</b>
1448-1506	<i>Invited Speaker</i> A dynamically regulated enhancer landscape driving axial elongation in the mouse <b>Edwina McGlenn, Monash University, Australia</b>
1506-1520	In situ mapping of inner ear primary afferent populations <b>Lily Pearson, University of New South Wales, Australia</b>
1520-1534	Cofactor-mediated sensitivity to chromatin can drive transcription factor activity. <b>Luke Isbel, South Australian immunoGenomics Cancer Institute, Australia</b>
1534-1548	Investigation of a novel fertility factor <b>Wei Cao, Monash University, Australia</b>
<b>SYM23 - Bioinformatics, Computational Biology and 'Omics - Single cell 'omics - Room 217</b>	
<b>Chairs</b>	Matt Lewsey & Rory Bowden
1430-1448	<i>Invited Speaker</i> Multi-omic characterisation of lymphocyte heterogeneity during hypertension <b>Maria Jelinic, La Trobe University, Australia</b>
1448-1506	<i>Invited Speaker</i> Evolution of haematopoiesis: regulation of gene expression in vertebrate blood cells <b>Carolyn de Graaf, Walter &amp; Eliza Hall Institute, Australia</b>
1506-1520	Single-cell RNA-seq reveals candidate synergistic treatments for the chemoprevention of hereditary diffuse gastric cancer. <b>Kieran Redpath, University of Otago, New Zealand</b>
1520-1534	Unveiling transcriptional heterogeneity in neuroendocrine prostate cancer through single-cell technology <b>Rosalía Quezada Urban, Monash Biomedicine Discovery Institute, Australia</b>
1534-1548	Single-cell omics and spatial mapping reveals sex-specific mechanisms governing cardiac fibrosis and hypertrophy. <b>Gabriella Farrugia, Baker Heart &amp; Diabetes Institute, Australia</b>

## TUESDAY

**SYM24 - Microbial World - Intra dynamics of microbes and their host - Room 218**

<b>Chairs</b>	Gilda Tachedijan & Victor Nizet
1430-1448	<i>Invited Speaker</i> Highly secreted tryptophanyl-trna synthetase as a theranostic target for hypercytokinemic sever sepsis. <b>Mirim Jin, Gachon University, South Korea</b>
1448-1506	<i>Invited Speaker</i> Elucidation of the virus-stat interface <b>Gregory Moseley, Monash University, Australia</b>
1506-1520	Voltage-gated T-type calcium channel blockers reduce apoptotic body mediated SARS-CoV-2 cell-to-cell spread and subsequent cytokine storm. <b>Kha Phan, La Trobe University, Australia</b>
1520-1534	Host directed therapy to improve anti-parasitic immunity in volunteers experimentally infected with blood stage malaria. <b>Damian Oyong, Burnet Institute, Australia</b>
1534-1548	The isolation and characterisation of a <i>Faecalibacterium prausnitzii</i> lytic phage <b>Mikaela Whitty, La Trobe University, Australia</b>

**SYM25 - Biotechnology and Synthetic Biology - Engineered living materials - Room 219**

<b>Chairs</b>	Bini Zhou & Melissa Call
1430-1448	<i>Invited Speaker</i> Engineering vascularized tissues with spontaneous orthogonal cell alignment mimicking native blood vessels <b>Andrea O'Connor, University of Melbourne, Australia</b>
1448-1506	<i>Invited Speaker</i> Enzyme action for the enhancement of 3D bioprinted engineered living materials <b>Mark Shannon, Australian National University, Australia</b>
1506-1520	Bio-based porphyrin synthesis and its photoactive application using engineered <i>Corynebacterium glutamicum</i> <b>Sung Ok Han, Korea University, South Korea</b>
1520-1534	Triglyceride-tethered membrane lipase sensor <b>Samara Bridge, University of Technology Sydney, Australia</b>
1534-1548	High yield vesicle packaged recombinant protein production from <i>E. coli</i> . <b>Dan Mulvihill, University of Kent, United Kingdom</b>

**SYM26 - Cell, Developmental and Stem Cell Biology - Cell & developmental biology in disease - Room 220**

<b>Chairs</b>	Hozumi Motohashi & Michael Samuel
1430-1448	<i>Invited Speaker</i> The keap1-nrf2 pathway and primary cilia - new partners in lung cancer transformation <b>Kate Sutherland, Walter &amp; Eliza Hall Institute, Australia</b>
1448-1506	<i>Invited Speaker</i> Targeting lipid metabolism in leukaemic stem cells to induce ferroptosis as a therapeutic strategy for acute myeloid leukaemia <b>Claudia Bruedigam, QIMR Berghofer, Australia</b>
1506-1520	The correct allocation and differentiation of endoderm populations during gastrulation is a critical precursor of heart formation. <b>Ruth Arkell, Australian National University, Australia</b>
1520-1534	Receptor guanylyl cyclase C and cGMP: gut reactions <b>Sandhya Visweswariah, Indian Institute of Science, India</b>
1534-1548	Tumour tissue engineering: modelling cancer with biomaterial-based platforms <b>Daniela Loessner, Monash University, Australia</b>

**1550-1620 Afternoon Tea & Poster Viewing - Exhibition Hall**

1620-1750 Concurrent session 8 - Symposia	
<b>SYM27 - RNA Technology Day - mRNA applications and challenges - Plenary Hall 3</b>	
<b>Chairs</b>	Norbert Pardi & Natalie Trevaskis
1620-1638	<i>Invited Speaker</i> Precise delivery of mRNA therapeutics <b>Angus Johnston, Monash University, Australia</b>
1638-1656	<i>Invited Speaker</i> Leveraging mRNA and lipid nanoparticle technology to develop a cure for HIV <b>Paula Cevaal, University of Melbourne, Australia</b>
1656-1710	Precise gene editing in hematopoietic stem cells using RNA-based delivery. <b>Andrew Deans, St. Vincent's Institute of Medical Research, Australia</b>
1710-1724	Repurposing the type I-D CRISPR-cas system into a programmable gene silencing tool <b>Shaham Cameron, University of Otago, New Zealand</b>
1724-1738	Genetic and epigenetic routes to building resilience in grapevine. <b>Annabel Whibley, Bragato Research Institute, New Zealand</b>
<b>SYM28 - Bioinformatics, Computational Biology and 'Omics - Systems biology - Room 210</b>	
<b>Chairs</b>	Lan Nguyen & Marc Wilkins
1620-1638	<i>Invited Speaker</i> Deciphering the basis of cell type specificity and regulatory transitions <b>Emily Wong, Victor Chang Cancer Research Institute, Australia</b>
1638-1656	<i>Invited Speaker</i> Strain dynamics of contaminating bacteria modulate the yield of ethanol biorefineries. <b>Simone Li, Monash University, Australia</b>
1656-1710	DDMut-PPI: predicting effects of mutations on protein-protein interactions using graph-based deep learning. <b>Yunzhuo Zhou, University of Queensland, Australia</b>
1710-1724	Optimizing gene expression representation for enhanced drug response prediction through data augmentation <b>Diyuan Lu, Helmholtz Center, Germany</b>
1724-1738	Tools and workflows for the exploration and visualization of massive protein sequence space <b>John Chen, Australian National University, Australia</b>
<b>SYM29 - Molecular Basis of Disease - Metabolic disease - Room 211</b>	
<b>Chairs</b>	Kristin Brown & Enyuan Cao
1620-1638	<i>Invited Speaker</i> Exploiting adipose tissue eosinophils to combat obesity <b>Kate Quinlan, University of New South Wales, Australia</b>
1638-1656	<i>Invited Speaker</i> Hypothalamic neurofibrosis: a new player in the fight against metabolic disease <b>Garron Dodd, University of Melbourne, Australia</b>
1656-1710	Dihydroceramide desaturase: the central gatekeeper of sphingolipid biology with links to disease <b>Melissa Pitman, University of Adelaide, Australia</b>
1710-1724	<i>ASBMB Fred Collins Award</i> Loss of cortactin impedes the release of extracellular vesicles and prevents cancer associated cachexia <b>Sai Vara Prasad Chitti, La Trobe University, Australia</b>
1724-1738	Reduced protein import via TIM23 sort drives disease pathology in TIMMzo50-associated mitochondrial disease. <b>Jordan Cramer, University of Melbourne, Australia</b>

## TUESDAY

**SYM30 - Structural Biology and Biophysics - Single molecule biophysics - Room 212**

<b>Chairs</b>	Toby Bell & Senthil Arumugam
1620-1638	<i>Invited Speaker</i> Rushing for a spatial-temporal mapping of the intracellular trafficking and secretase processing of amyloid precursor protein and amyloid-beta production <b>Lou Fourriere-Chea, University of Melbourne, Australia</b>
1638-1656	<i>Invited Speaker</i> Nanoscale biomolecular condensates dynamically cluster synaptic vesicles at the presynapse <b>Frederic Meunier, University of Queensland, Australia</b>
1656-1710	Real-time single-molecule observation of chaperone-assisted protein folding <b>Nicholas Marzano, University of Wollongong, Australia</b>
1710-1724	The perfringolysin O pore exhibits a hierarchical subunit stoichiometry. <b>Meijun Liu, Shanghai Jiao Tong University, China</b>
1724-1738	Single molecule microscopy of a pore forming protein and its co-toxin. <b>Martin Do, University of New South Wales, Australia</b>

**SYM31- Genomics, Gene Regulation and Epigenetics - Chromatin & epigenetics - Room 213**

<b>Chairs</b>	Phillippa Taberlay & Luke Isbel
1620-1638	<i>Invited Speaker</i> Histone FRET microscopy of live cell heterochromatin architecture <b>Elizabeth Hinde, University of Melbourne, Australia</b>
1638-1656	<i>Invited Speaker</i> GATA3 drives lineage specification in human gastrulation through epigenetic remodelling. <b>Adrienne Sullivan, University of Adelaide, Australia</b>
1656-1710	Uncharted cs: mapping methylation-sensitive gata motifs unveils a novel haematopoietic regulatory mechanism. <b>Sonia Goozee, University of New South Wales, Australia</b>
1710-1724	Molecular basis of epigenetic silencing by human MORC2 <b>Shabih Shakeel, Walter &amp; Eliza Hall Institute, Australia</b>
1724-1738	An atlas of the human ageing epigenome and exercise rejuvenation <b>Nir Eynon, Australian Regenerative Medicine Institute, Australia</b>

**SYM32 - Molecular Physiology - Cardiac physiology- Room 217**

<b>Chairs</b>	Livia Hool & Lea Delbridge
1620-1638	<i>Invited Speaker</i> Cardiotoxicity induced by breast cancer therapy: mechanism and potential mitigation. <b>Wally Thomas, University of Queensland, Australia</b>
1638-1656	<i>Invited Speaker</i> The cardiomyopathy-associated ALPK3 regulates a proteostasis network at the sarcomeric m-band. <b>James Mcnamara, Murdoch Childrens Research Institute, Australia</b>
1656-1710	Dissecting the role of Hopx variants in cardiac remodelling and disease <b>Amy Hanna, University of Queensland, Australia</b>
1710-1724	Regulation of cardiac growth and signalling by the protein phosphatase PP2A-B55alpha <b>Kate Weeks, University of Melbourne, Australia</b>
1724-1738	Novel role of WDR62 in the regulation of postnatal heart function <b>Slade Du Randt, University of Queensland, Australia</b>

<b>SYM33 - Cell Signalling and Metabolism - Kinase based signal transduction - Room 218</b>	
<b>Chairs</b>	Dario Alessi & Isabelle Lucet
1620-1638	<i>Invited Speaker</i> CDKL5 kinase in neuronal development and function <b>Sila Ultanir, Francis Crick Institute, United Kingdom</b>
1638-1656	<i>Invited Speaker</i> Shining a light on dark and gloomy kinases <b>James Murphy, Walter &amp; Eliza Hall Institute, Australia</b>
1656-1710	pH-dependent phase separation of kinases modifies signalling output of stress-induced intracellular pathways. <b>Yuliia Didan, University of Queensland, Australia</b>
1710-1724	Discovering crypto guanylate cyclases in the human proteome <b>Helen Irving, La Trobe University, Australia</b>
1724-1738	Illuminating new calcium-dependant mechanisms of kinase regulation <b>Chris Horne, Walter &amp; Eliza Hall Institute, Australia</b>
<b>SYM34 - Microbial World - One health: challenges and solutions - Room 219</b>	
<b>Chairs</b>	Michelle Wille & Prasad Paradkar
1620-1638	<i>Invited Speaker</i> Emergence of Japanese encephalitis virus (JEV) in mainland Australia in 2021-2022: a One Health approach to JEV phylogenomics <b>David Williams, CSIRO, Australia</b>
1638-1656	<i>Invited Speaker</i> One Health challenges and strengths in remote Australian Indigenous communities <b>Cameron Raw, University of Melbourne, Australia</b>
1656-1710	Characterization of highly pathogenic avian influenza A (H5N1) viruses isolated from cats in South Korea <b>Kyungmoon Lee, Seoul National University, South Korea</b>
1710-1724	Investigating the functional diversity of different Hendra virus genotypes <b>Melanie Tripp, Monash University, Australia</b>
1724-1738	Decoding the effector-mediated dialogue between coxiella burnetii and its host during infection <b>Genevieve Samuel, Monash University, Australia</b>
<b>SYM35 - Cell, Developmental and Stem Cell Biology - Non-mammalian models of development- Room 220</b>	
<b>Chairs</b>	Ben Hogan & Kieran Harvey
1620-1638	<i>Invited Speaker</i> Controlling germ cell fate through extracellular signaling <b>Roger Pocock, Monash University, Australia</b>
1638-1656	<i>Invited Speaker</i> Regulation of muscle stem cell dynamics: Lessons from the zebrafish <b>Avnika Ruparelia, University of Melbourne, Australia</b>
1656-1710	Loss of the transcriptional repressor Hfp promotes stem cell niche escape. <b>Teresa Bonello, Australian National University, Australia</b>
1710-1724	Zyxin regulates the drosophila melanogaster hippo signalling pathway by recruiting ajuba and warts to adherens and basal spot junctions. <b>Harmanjeet Singh, Monash University, Australia</b>
1724-1738	Cic non-autonomously promotes neural stem cell differentiation as a transcriptional repressor and activator in the cortex glial niche. <b>Brooke Kinsela, The John Curtin School of Medical Research, Australia</b>
<b>1750-1755</b>	<b>Session change over</b>
<b>1755-1840</b>	<b>Plenary 5 - Nobel Awardee Special</b>
	<i>Session supported by New England Biolab</i>
<b>Room</b>	Plenary Hall 2
<b>Chairs</b>	Erinna Lee & Marilyn Anderson
<b>Speaker</b>	Path to a Nobel Prize <b>Richard Roberts, New England Biolab, USA</b>
<b>1845-2200</b>	<b>IUBMB General Assembly - Room 218</b>

# DAILY PROGRAM

## WEDNESDAY 25 September 2024 – Gene Editing Day

0730-1800	Registration – Plenary Foyer
0830-0915	Plenary 6 - Gene Editing
Room	Plenary Hall 3
Chair	Peter Waterhouse
Speaker	Precision genome editing for future agriculture <b>Caixia Gao, Chinese Academy of Sciences, China</b>
0915-0925	Session change over
0925-1030	Concurrent Session 9 – Keynotes, Symposia and SIGs
KS26 - Cell Signalling and Metabolism – Plenary Hall 3	
	<i>Session supported by Metabolomics Australia</i>
Chairs	Peter Mace & Kate Quinlan
0925-0955	<i>Keynote Speaker</i> Metabolic regulation of cell state <b>Heather Christofk, University of California, USA</b>
0955-1013	<i>Invited Speaker</i> Why is exercise medicine? Role of exercise extracellular vesicles in prevention of disease <b>Mark Febbraio, Monash University, Australia</b>
1013-1027	TLR4 endocytosis is dissociable from type I IFN expression but requires TLR4 activity and ubiquitination machinery. <b>Antje Blumenthal, University of Queensland, Australia</b>
KS27 - Biotechnology and Synthetic Biology – Room 210	
	<i>Session supported by CSL</i>
Chairs	Wayne Patrick & Colin Jackson
0925-0955	<i>Keynote Speaker</i> Some thoughts on machine learning-based protein engineering <b>Jennifer Listgarten, University of California, USA</b>
0955-1013	<i>Invited Speaker</i> Ruggedness in protein evolution and design <b>Matthew Spence, Australian National University, Australia</b>
1013-1027	Molecular insights into high-frequency electromagnetic field effects on cell membranes <b>Nevena Todorova, Royal Melbourne Institute of Technology, Australia</b>
KS28 - Gene Editing Day – Room 211	
Chairs	Gaetan Burgio & Karen Massel
0925-0955	<i>Keynote Speaker</i> Development and characterization of precision genome editing tools. <b>Alexis Komor, University of California, USA</b>
0955-1013	<i>Invited Speaker</i> Using advanced CRISPR techniques in vivo – the key to identifying tumour drivers and therapeutic vulnerabilities <b>Marco Herold, Olivia Newton John Cancer Research Institute, Australia</b>
1013-1027	Manipulation of mixed-linkage (1,3;1,4)- $\beta$ -glucan in barley using gene editing technology <b>Guillermo Garcia-Gimenez, La Trobe University, Australia</b>

**SYM36 - Protein homeostasis and metabolism in human health and disease - Room 212**

<b>Chairs</b>	Guillaume Thibault & Eun-Kyeong Jo
0925-0945	<i>Invited Speaker</i> Homeostatic mechanisms of the 26S proteasome amidst diverse cellular stress challenges <b>Min Jae Lee, Seoul National University, South Korea</b>
0945-1005	<i>Invited Speaker</i> Role of arginine methylation on metabolic dysfunction-associated steatotic liver disease <b>Seung-Hoi Koo, Korea University, South Korea</b>
1005-1025	<i>Invited Speaker</i> The molecular link between autophagy, stress granules, and neurodegenerative disease <b>Jin-a Lee, Hannam University, South Korea</b>

**KS29 - Bioinformatics, Computational Biology and 'Omics - Room 213**

<b>Chairs</b>	Darren Creek & Simone Rochfort
0925-0955	<i>Keynote Speaker</i> Metabolic perturbation of the immune system by Leishmania parasites <b>Michael Barrett, University of Glasgow, UK</b>
0955-1013	<i>Invited Speaker</i> Proteome profiling of macrophage reprogramming upon dead cell clearance <b>Maria Tanzer, Walter &amp; Eliza Hall Institute, Australia</b>
1013-1027	Leveraging AI in predicting protease-specific substrate cleavage sites <b>Fuyi Li, University of Adelaide, Australia</b>

**ASBMB Special Interest Groups - Room 217**

<b>Chairs</b>	Sacha Pulsford, Laura Osellame & Alison Roennfeldt
0925-0935	<i>Yeast SIG</i> Fighting ectoparasites with yeast: developing and deploying a glyco-relevant livestock vaccine against Flystrike <b>Ed Kerr, CSIRO, Australia</b>
0935-0945	<i>Adelaide Protein Group</i> Microbial progenitors of protein aggregation diseases and infectious aetiology of dementia <b>Ibrahim Javed, University of South Australia, Australia</b>
0945-0955	<i>Perth Protein Group</i> The mystery of U-to-C RNA editing proteins in plants <b>Farley Kwok Van Der Giezen, University of Western Australia, Australia</b>
0955-1005	<i>Canberra Protein Group</i> Thermodynamic adaptations guide the evolution of ligand specificity <b>Rosemary Georgelin, Australian National University, Australia</b>
1005-1015	<i>Melbourne Protein Group</i> MORC2 phosphorylation fine tunes its DNA compaction activity <b>Winnie Tan, Walter &amp; Eliza Hall Institute, Australia</b>
1015-1025	<i>Queensland Protein Group &amp; Sydney Protein Group</i> Development of a generalisable tryptophan-optimised quenchbody biosensor based on a synthetic nanobody library <b>Jordan Cater, University of Wollongong, Australia</b>

**KS30 - Chairs Selection: DNA Restriction and Gene Editing - Room 219**

<b>Chair</b>	Nick Hoogenraad
0925-0955	<i>Keynote Speaker</i> The many roles of DNA methylation in bacteria <b>Richard Roberts, New England Biolabs, USA</b>
0955-1020	<i>Keynote Speaker</i> Boosting fetal globin expression via epigenome editing <b>Merlin Crossley, University of New South Wales, Australia</b>

# WEDNESDAY

1030-1100	<b>Morning Tea &amp; Poster Viewing - Exhibition Hall</b>
1100-1210	<b>Concurrent Session 10 - Keynote &amp; Symposia</b>
<b>KS31 - Gene Editing Day - Plenary Hall 3</b>	
<b>Chairs</b>	Gavin Knott & Cyntia Taveneau
1100-1130	<i>FAOBMB Lecture</i> Defence and counter-defence strategies in the phage-bacterium arms race. <b>Peter Fineran, University of Otago, New Zealand</b>
1130-1148	<i>Invited Speaker</i> Predicting phage-host interactions <b>Robert Edwards, Flinders University, Australia</b>
1148-1204	Viral-induced genome editing in plants using miniature CRISPR genome editors <b>Zheng Gong, University of Queensland, Australia</b>
<b>SYM37 - Bioinformatics, Computational Biology and 'Omics - Molecular dynamics simulation of biomolecules - Room 210</b>	
<b>Chairs</b>	Peter Bond & Megan O'Mara
1100-1118	<i>Invited Speaker</i> Understanding sterol-selectivity in sponge-like aggregates of the antifungal drug amphotericin B in physiologically relevant conditions <b>Evelyne Deplazes, University of Queensland, Australia</b>
1118-1136	<i>Invited Symposia Speaker</i> The role of the STAS domain in chloride ion binding and transport in SLC26A9: Insights from molecular dynamics simulations <b>Satoshi Omori, Nagahama Institute of Bioscience and Technology, Japan</b>
1136-1150	Interfacial specific ion effects of charged protocell membranes & implications for stability of prebiotic vesicles: a molecular dynamic study. <b>Joshua Brown, CSIRO, Australia</b>
1150-1204	Engineering aptamers for biomedical application using biomolecular simulations. <b>Sérgio F. Sousa, University Porto, Portugal</b>
<b>SYM38 - Microbial World - Environmental microbiology - Room 211</b>	
<b>Chairs</b>	Ian Paulsen & Rachael Lappan
1100-1118	<i>Invited Speaker</i> New frameworks for understanding microbial communities. <b>Jen Wood, La Trobe University, Australia</b>
1118-1136	<i>Invited Speaker</i> Does plastic pollution pose a problem to marine microbes? <b>Sasha Tetu, Macquarie University, Australia</b>
1136-1150	Ethical bioprospecting for phages across Australian landscapes <b>Trevor Lithgow, Monash University, Australia</b>
1150-1204	Genetic elements and defense systems drive diversification and evolution in asgard archaea. <b>Luis Valentin-Alvarado, University of California Berkeley, USA</b>
<b>SYM39 - Cell, Developmental and Stem Cell Biology - Stem cells and organoids - Room 212</b>	
<b>Chairs</b>	Nick Barker & Helen Abud
1100-1118	<i>Invited Speaker</i> Modelling subtypes of age-related macular degeneration using patient iPSCs <b>Alice Pébay, University of Melbourne, Australia</b>
1118-1136	<i>Invited Speaker</i> Cancer stem cells: how to target a moving target. <b>Dustin Flanagan, Monash University, Australia</b>
1136-1150	Examining the role of vascular endothelial cells in efferocytosis <b>Amy Baxter, La Trobe University, Australia</b>
1150-1204	Toward brain cancer organoid-informed precision medicine for glioblastoma <b>Claire Storey, Walter &amp; Eliza Hall Institute, Australia</b>



<b>SYM40 - Genomics, Gene Regulation and Epigenetic - Nuclear organisation - Room 213</b>	
<b>Chairs</b>	Job Dekker & Joanna Achinger-Kawecka
1100-1118	<i>Invited Speaker</i> Exploring the genome of immune memory in four dimensions <b>Timothy Johanson, Walter &amp; Eliza Hall Institute, Australia</b>
1118-1136	<i>Invited Speaker</i> Identification of pan-cancer mutational hotspots at persistent CTCF binding sites <b>Amanda Khoury, Garvan Institute, Australia</b>
1136-1150	Heterochromatin structure supports euchromatic gene transcription to prevent premature immune ageing. <b>Christine Keenan, University of Melbourne, Australia</b>
1150-1204	3D perspectives on spatiotemporal Hox gene expression in the native onychophoran, <i>peripatoides novaezealandiae</i> <b>Taylor Gallagher, University of Otago, New Zealand</b>
<b>SYM41 - Cell Signalling and Metabolism - Chemical biology in metabolism and signalling - Room 217</b>	
<b>Chairs</b>	Yuning Hong & Peter Mabbitt
1100-1118	<i>Invited Speaker</i> Micropolarity governs the structural organization of biomolecular condensates. <b>Xin Zhang, Westlake University, China</b>
1118-1136	<i>Invited Speaker</i> Unlocking the potential of tag-targeting PROTACs: In vivo discoveries and novel perspectives on substrate ubiquitination <b>Rebecca Feltham, Walter &amp; Eliza Hall Institute, Australia</b>
1136-1150	Towards restoration of proteomic balance: Tau antibodies' impact on a mouse model of tauopathy <b>Esteban Cruz, University of Queensland, Australia</b>
1150-1204	Peroxisome redoxins as redox sensors and signalling proteins: one ring to rule them all <b>Mark Hampton, University of Otago, New Zealand</b>
<b>SYM42 - Molecular Physiology - Vascular biology - Room 218</b>	
<b>Chairs</b>	Maria Jelinic & Dino Premilovac
1100-1118	<i>Invited Speaker</i> Perivascular adipose tissue in control of cardiometabolic risk <b>Etto Eringa, Amsterdam University Medical Centres, The Netherlands</b>
1118-1136	<i>Invited Speaker</i> Mechanisms underpinning the protective effects of neurokinin 1 blockade in the pulmonary vasculature <b>Kristin Bubb, Monash University, Australia</b>
1136-1150	Exploring an association between maternal and neonatal endothelial nitric oxide synthase (eNOS) gene variants and nitric oxide production and oxidative stress in preeclampsia: a case control study in Bangladesh <b>Sonia Tamanna, University of Dhaka, Bangladesh</b>
1150-1204	<i>To be confirmed</i>

# WEDNESDAY

## SYM43 - Biotechnology and Synthetic Biology – Self-assembly for synthetic biology – Room 219

	<i>Session supported by Macquarie University</i>
<b>Chairs</b>	Mibel Aguilar & Christina Cortez-Jugo
1100-1118	<i>Invited Speaker</i> Surface-fill peptide hydrogel delivers miRNA to treat mesothelioma <b>Joel Schneider, National Cancer Institute, USA</b>
1118-1136	<i>Invited Speaker</i> Programming DNA origami for intracellular applications <b>Jessica Kretzmann, University of Western Australia, Australia</b>
1136-1150	Self-assembling bioengineered conjugated polymers for biomedical applications <b>Ben McLean, Royal Melbourne Institute of Technology, Australia</b>
1150-1204	Determining the action of antimicrobial formulations at the nanoscale using biomimetic bacterial membranes <b>Anton Le Brun, ANSTO, Australia</b>

## SYM44 - Molecular Basis of Disease – Immunology and disease – Room 220

<b>Chairs</b>	Matthew Sweet & James Curson
1100-1118	<i>Invited Speaker</i> Resolution of stress in chronic inflammatory diseases <b>Sumaira Hasnain, Mater Research Institute, Australia</b>
1118-1136	<i>Invited Speaker</i> Dnmt3a+/r878h clonal haematopoiesis accelerates atherosclerosis and is associated with increased mutant myelopoiesis and thrombopoiesis in mice <b>Dragana Dragoljevic, Baker Institute, Australia</b>
1136-1150	Public T cell clonotypes are selected in HLA-B*57:01+/HIV + patients independently of the viral load <b>Dimitra Chatzileontiadou, La Trobe University, Australia</b>
1150-1204	Targeting immune aquaporins to tackle inflammatory diseases <b>Inês V. da Silva, University of Lisbon, Portugal</b>

## 1210-1330 Lunch, Lightning Talks, Poster Viewing, Exhibition – Exhibition Hall

1220-1250	Lightning Talks –Theatrette
1230-1330	Poster Presentations

## 1330-1450 Concurrent session 11 – Symposia

## SYM45 - Gene Editing Day - Biology of CRISPR – Plenary Hall 3

<b>Chairs</b>	Alexis Komor & Gaetan Burgio
1330-1348	<i>Invited Speaker</i> Understanding and controlling the plasticity of nucleic acid recognition by CRISPR-Cas9 <b>Cynthia Taveneau, Monash University, Australia</b>
1348-1406	<i>Invited Speaker</i> Leveraging natural gene drives for feral rodent population suppression <b>Paul Thomas, South Australian Health &amp; Medical Research Institute, Australia</b>
1406-1420	Engineering bufotoxin resistance in marsupials <b>Pierre Ibri, University of Melbourne, Australia</b>
1420-1434	Genome-wide identification of bacterial genes used in nucleus-forming jumbo phage infection <b>Kate Harding, University of Otago New Zealand</b>
1434-1448	Harnessing CRISPR activation to upregulate TTN as a potential treatment for titinopathies <b>Anthea Lee, University of New South Wales, Australia</b>

**SYM46 - Molecular Basis of Disease - Neurological disease - Room 210**

<b>Chairs</b>	Frederic Meunier & Rebecca San Gil
1330-1348	<i>Invited Speaker</i> Developing a novel therapy for motor neuron disease and frontotemporal dementia <b>Lars Ittner, Macquarie University, Australia</b>
1348-1406	<i>Invited Speaker</i> Deciphering the immune-alpha synuclein interactions in the onset of Parkinson's disease <b>Nathalie Dehorter, University of Queensland, Australia</b>
1406-1420	Zooming in: nanoscale considerations in neurodegenerative diseases <b>Adekunle Bademosi, University of Queensland, Australia</b>
1420-1434	Unveiling the molecular landscape of tau aggregates in Alzheimer's disease and related disorders <b>Dorothea Boeken, University of Cambridge United Kingdom</b>
1434-1448	Multi-omic analysis of kidney organoids as a model of hypoxic injury and maladaptive repair <b>Ana Nunez Nescolarde, Monash University, Australia</b>

**SYM47 - Microbial World - Antimicrobial resistance - Room 211**

<b>Chairs</b>	Harshini Weerasinghe & Stephanie Neville
1330-1348	<i>Invited Speaker</i> A bacterial regulatory mRNA has expanded through the acquisition of repeat insertion sequences and is required for pathogenesis and antibiotic tolerance <b>Daniel Mediat, University of Technology Sydney, Australia</b>
1348-1406	<i>Invited Speaker</i> Exploring the utility of zinc-ionophores for the treatment of acinetobacter baumannii lung infection <b>David De Oliveira, University of Queensland, Australia</b>
1406-1420	Quercetin-loaded Solid Lipid Nanoparticles (SLN-QT): an effective approach for controlling therapeutic resistance in nematodes <b>Sunidhi Sharma, Thapar Institute Of Engineering And Technology, India</b>
1420-1434	Studying the novel peptide lactofungin that potentiates the effect of the anti-fungal drug amphotericin b <b>Chandra Harshita Chavali, University of Queensland, Australia</b>
1434-1448	Daptomycin-loaded nanoparticles synergistically kill methicillin-resistant staphylococcus aureus <b>Jih-Hang Jiang, Monash University, Australia</b>

**SYM48 - Cell, Developmental and Stem Cell Biology - Imaging in cell and developmental biology - Room 212**

<b>Chairs</b>	Hongbin Jin & John Lock
1330-1348	<i>Invited Speaker</i> Unveiling embryo developmental potential with advanced photonics <b>Kylie Dunning, University of Adelaide, Australia</b>
1348-1406	<i>Invited Speaker</i> The Hippo pathway transcription factor Scalloped and its co-factors alter each other's chromatin binding dynamics to modulate transcription in vivo <b>Samuel Manning, Monash University, Australia</b>
1406-1420	Enlightening the role of microtubules in mesenchymal cell migration <b>Joyce Meiring Utrecht University Netherlands</b>
1420-1434	Microtubule-dependent pluripotent cell plasticity orchestrated by centrosomal and non-centrosomal switching <b>Oliver Anderson Australian Regenerative Medicine Institute, Australia</b>
1434-1448	Organelle mapping in dendrites of human iPSC-derived neurons reveals dynamic functional dendritic Golgi structures <b>Jingqi Wang, University of Melbourne, Australia</b>

## WEDNESDAY

<b>SYM49 - Gene Editing Day – CRISPR engineering – Room 213</b>	
<b>Chairs</b>	Peter Fineran & Caixia Gao
1330-1348	<i>Invited Speaker</i> Gene editing for more nutritious grain crops <b>Karen Massel, University of Queensland, Australia</b>
1348-1406	<i>Invited Speaker</i> In vivo genome editing using targeted integration corrects ornithine transcarbamylase deficiency with restoration of liver-wide metabolic zonation <b>Samantha Ginn, Children's Medical Research Institute, Australia</b>
1406-1420	Exploring epigenomics for crop improvement: uncovering and manipulating hidden genetic control elements <b>Yan Zhang, University of Queensland, Australia</b>
1420-1434	Taking aim at targeted "whole-gene" insertion: a crispr-prime editing and bxbi integrase duet <b>Jesse Kennedy, University of Adelaide, Australia</b>
1434-1448	Harnessing CRISPR RNA base editing for inherited retinal disease <b>Satheesh Kumar, Centre For Eye Research Australia, Australia</b>
<b>SYM50 - Structural Biology and Biophysics – Advances in microscopy – Room 217</b>	
<b>Chairs</b>	Donna Whelan & Kate McArthur
1330-1348	<i>Invited Speaker</i> Imaging subcellular dynamics in tissues, organoids and spheroids using airy beam light sheet microscopy <b>Senthil Arumugam, EMBL Australia, Australia</b>
1348-1406	<i>Invited Speaker</i> Using cryo-electron microscopy to understand the biology and drug binding of the wnt signalling pathway <b>Alisa Glukhova, Walter &amp; Eliza Hall Institute, Australia</b>
1406-1420	Biomolecular complex structures demonstrate how cryo-EM reveals molecular mechanisms <b>Gökhan Tolun, University of Wollongong, Australia</b>
1420-1434	Growth of model protocells through hypoosmotic shock <b>Lauren Lowe, University of New South Wales, Australia</b>
1434-1448	Timekeeping mechanisms in early endosomal trafficking <b>Harrison York, Monash University, Australia</b>
<b>SYM51 - Biotechnology and Synthetic Biology – Protein design – Room 218</b>	
<b>Chairs</b>	Jacqui Matthews & Joe Kaczmarek
1330-1348	<i>Invited Speaker</i> Precise and minimal modification of proteins with spies and reactive handles <b>Thomas Huber, Australian National University, Australia</b>
1348-1406	<i>Invited Speaker</i> Developing novel exopolysaccharides for plant-based food applications <b>Yosephine Gumulya, University of Queensland, Australia</b>
1406-1420	GAOptimizer: genetic algorithm based protein redesign method <b>Shogo Nakano, University of Shizuoka, Japan</b>
1420-1434	Engineering antibody Fc domains to enhance vaccine responses <b>William Kelton, University of Waikato, New Zealand</b>
1434-1448	Asap-id: a method of proximity labelling with a 19 amino acid fusion tag <b>Ruohua Lyu, University of Melbourne, Australia</b>

**SYM52 - Cell Signalling and Metabolism – Protein degradation – Room 219**

<b>Chairs</b>	Min-jae Lee & Julia Pagan
1330-1348	<i>Invited Speaker</i> Proteasome phase separation triggered by ATP depletion <b>Yasushi Saeki, University of Tokyo, Japan</b>
1348-1406	<i>Invited Speaker</i> Crossing Codes – at the intersection of ubiquitin and glycan <b>David Komander, Walter &amp; Eliza Hall Institute, Australia</b>
1406-1420	The cannabis extract PHEC-66 triggers melanoma cell apoptosis <b>Terrence Piva, RMIT University, Australia</b>
1420-1434	Crispr-directed chromosomal translocations provide novel insights into leukaemia biology <b>Teresa Sadras, Peter MacCallum Cancer Centre, Australia</b>
1434-1448	Extracellular and intracellular functions of V-domain Ig-containing suppressor of T cell activation (VISTA) immune checkpoint protein <b>Vadim Sumbayev, University of Kent, United Kingdom</b>

**SYM53 - Molecular Physiology – Developmental physiology: Heating it up with advanced imaging in pregnancy and impacts on offspring – Room 220**

<b>Chairs</b>	Janna Morrison & Deanne Hryciw
1330-1348	<i>Invited Speaker</i> The vascular voyage: MRI insights into prenatal blood flow and oxygen delivery <b>Christopher Macgowan, Hospital For Sick Children, Canada</b>
1348-1406	<i>Invited Speaker</i> Extreme heat and pregnancy complications: utilising transdisciplinary approaches to understand physiological mechanisms <b>Caitlin Wyrwoll, University of Western Australia, Australia</b>
1406-1420	Influence of multiparity and choline intake during pregnancy on cognition <b>Valerie Lin, Nanyang Technological University, Singapore</b>
1420-1434	The role of ErbB4 receptor isoforms in postnatal cardiac development <b>Robert-Baraka Kibaja, University of Queensland, Australia</b>
1434-1448	Investigating the immunomodulatory role of PGRMC2 in maternal-fetal membrane interface using organ-on-chip platform <b>Ryan Lintao, University of the Philippines, Philippines</b>

1450-1520 **Afternoon Tea - Exhibition Hall**1520- **Society Award Presentations****Australian Society of Biophysics (ASB) Award Presentations – Room 210**

<b>Chair</b>	Elizabeth Hinde
1520-1545	<i>Young Biophysicist Award</i> Recipient to be announced
1545-1610	<i>McAulay-Hope Prize Lecture</i> <b>Yuning Hong, La Trobe University, Australia</b>

**Australian Physiological Society (AuPS) Lecture – Room 211**

<b>Chair</b>	Livia Hool
1520-1620	Exercise is medicine: muscle contraction, tissue crosstalk and disease prevention <b>Mark Febbraio, Monash University, Australia</b>

# WEDNESDAY

## Australian Society for Biochemistry and Molecular Biology (ASBMB) Award Presentations – Room 212

<b>Chair</b>	Ross Hannan
1520-1525	Introductions
1525-1555	<i>The Shimazdu Research Medal Lecture</i> Molecular basis of signalling by TIR domain containing proteins <b>Thomas Ve, Griffiths University, Australia</b>
1600-1615	<i>The Eppendorf Edman ECR Award Lecture</i> Understanding the molecular recognition of Bacteroides fragilis glycosphingolipids by natural killer T-cell receptor <b>Praveena Thirunavukkarasu, Monash University, Australia</b>
1620-1650	<i>The Lemberg Medal Lecture</i> Building elastic tissue: from the bench to the clinic <b>Anthony Weiss, University of Sydney, Australia</b>

## Australia & New Zealand Society for Cell & Developmental Biology (ANZSCDB) Award Presentations – Room 213

<b>Chair</b>	Aleksandra Filipovska
1520-1530	Presentation of awards and photographs
1530-1610	<i>President's Medal Talk</i> Golgi and friends: from glycosylation and membrane trafficking to neurodegeneration <b>Paul Gleeson, University of Melbourne, Australia</b>
1610-1620	Questions and discussion
1620-1640	<i>Emerging Leader Talk</i> Cell identity at the heart of development and disease <b>Nathan Palpant, Institute for Molecular Bioscience, Australia</b>
1640-1650	Questions and discussion

## New Zealand Society for Biochemistry & Molecular Biology (NZSBMB) Award Presentations - Room 218

<b>Chairs</b>	Peter Mac
1520-1550	<i>Custom Science Award for Research Excellence</i> Identifying isoform variation in autophagy as a cause of Parkinson's disease <b>Justin O'Sullivan, University of Auckland, New Zealand</b>
1550-1610	<i>NZSBMB Early Career Award, supported by Custom Science</i> Phage anti-CRISPR control by a DNA- and RNA-binding helix–turn–helix protein <b>Nils Birkholz, University of Otago, New Zealand</b>

## Australian Society for Microbiology (ASM) Presentations – Room 219

<b>Chairs</b>	Mark Schembri & Dena Lyras
1520-1540	Manipulation of the lysosome by Coxiella burnetii <b>Hayley Newton, Monash University, Australia</b>
1540-1600	Genome wide investigation of the paths of antibiotic uptake in Escherichia coli <b>Karl Hassan, University of Newcastle, Australia</b>
1600-1620	Evaluation of novel inhibitors against the macrophage infectivity potentiator in Burkholderia pseudomallei and Coxiella burnetii <b>Mitali Sarkar-Tyson, University of Western Australia, Australia</b>
1620-1640	Understanding gene regulation in bacterial pathogens to design better therapeutics <b>John Atack, Griffiths University, Australia</b>
1640-1700	Unravelling Resistance: Mycolic Acid Biosynthetic Pathway Mutations shield <i>Gordonia amarae</i> from the <i>Saccharibacterium</i> epiparasite <i>Ca. Mycosynbcater amalyticus</i> infection <b>Steve Petrovski, La Trobe University, Australia</b>

# WEDNESDAY

OUTREACH EVENT - Plenary Hall 3	
1430-1530	Escorted Visit to the Exhibition
1530-1600	Talk Fest for High School Students
<b>Society Annual General Meetings</b>	
1615-1715	ASB AGM - Room 210
1650-1750	ASBMB AGM - Room 212
1650-1750	ANZSCDB AGM -Room 213
<b>IUBMB Trainee Session</b>	
1700-1830	Introducing the IUBMB Trainee Initiative: supporting the next generation of scientists - Room 217
1830-2100	Congress Networking Event



# DAILY PROGRAM

## THURSDAY 26 September 2024 – Climate Change Day

0730-1700	Registration – Plenary Foyer
0830-0950	Concurrent Session 12- Symposia
<b>SYM54 - Climate Change Day – Causes and mitigation strategies of greenhouse gas emissions – Plenary Hall 3</b>	
<b>Chairs</b>	Esteban Marcellin & Zahra Islam
0830-0848	<i>Invited Speaker</i> Measuring the enteric methane production of beef cows <b>Marina Fortes, University of Queensland, Australia</b>
0848-0906	<i>Invited Speaker</i> Drug discovery for soil health: developing novel nitrification inhibitors for a greener agriculture <b>Uta Wille, University of Melbourne, Australia</b>
0906-0920	Sowing the seeds of evolution: Agriculture alters protein evolution of soil nutrient cycling genes globally <b>Timothy Ghaly, Macquarie University, Australia</b>
0920-0934	Native polymer degradation capacity of microorganisms in agricultural soils <b>Zahra Islam, University of Melbourne, Australia</b>
0934-0948	CRISPR/cas-based approaches to alter stress tolerance in barley <b>Goetz Hensel, Heinrich Heine University, Germany</b>
<b>SYM55 - Cell Signalling and Metabolism - OMICS in cellular regulation – Room 210</b>	
<b>Chairs</b>	Greg Redpath & Sally McCormick
0830-0848	<i>Invited Speaker</i> Single-cell omic analysis of diabetes-induced cardiac remodelling: transforming paradigms of cellular and molecular drivers of diabetic cardiomyopathy <b>Alex Pinto, Baker Institute, Australia</b>
0848-0906	<i>Invited Speaker</i> Global control of the activity and level of RNA polymerase II <b>Alexander Gillis, University of New South Wales, Australia</b>
0906-0920	Systems genetics identifies alpha-defensin-26 peptides as key determinates metabolic health <b>Stewart Masson, University of Sydney, Australia</b>
0920-0934	A novel role for lipid droplets as extracellular communicators during virus infection <b>Ebony Monson, La Trobe University, Australia</b>
0934-0948	Defining novel AMPK substrates by lysosome-enriched phosphoproteomics <b>Ashfaquul Hoque, St Vincent's Institute of Medical Research, Australia</b>
<b>SYM56 - Genomics, Gene Regulation and Epigenetics - Computational genomics – Room 211</b>	
<b>Chairs</b>	Jessica Mar & Belinda Phipson
0830-0848	<i>Invited Speaker</i> Genome-wide de novo tandem repeat variation in a four-generation family extensively sequenced with multiple long- and short-read technologies <b>Harriet Dashnow, University of Colorado, USA</b>
0848-0906	<i>Invited Speaker</i> Roundhound: detecting plasmid transmission from short-read datasets <b>Leah Roberts, Queensland University of Technology, Australia</b>
0906-0920	Deciphering the genetic code of autoimmunity: finding the function of autoimmune risk variants <b>Viacheslav Kriachkov, Walter &amp; Eliza Hall Institute, Australia</b>
0920-0934	Under-appreciated and overlooked: Mapping the identity, molecular diversity and eDNA context of New Zealand's freshwater sponge species <b>Ella Dewar, University of Otago, New Zealand</b>
0934-0948	An atlas of sex-specific epigenetic ageing across eight human tissues <b>Danielle Hiam, Deakin University, Australia</b>



**SYM57 - Cell, Developmental and Stem Cell Biology – Intracellular trafficking and extracellular vesicles - Room 212**

<b>Chairs</b>	Paul Gleeson & Pamali Fonseka
0830-0848	<i>Invited Speaker</i> Structure of the endosomal Commander complex mutated in Ritscher-Schinzel syndrome: combining crystallography, cryoEM and AlphaFold2 <b>Brett Collins, University of Queensland, Australia</b>
0848-0906	<i>Invited Speaker</i> Phospholipid scrambling: a novel regulator of extracellular vesicle cargo packaging and function <b>Sarah Stewart, La Trobe University, Australia</b>
0906-0920	Ubiquitin K29 chains regulate the biogenesis of extracellular vesicles <b>Yoon Lim, University of South Australia, Australia</b>
0920-0934	In vivo visualization of endothelial cell-derived extracellular vesicle formation in steady state and malignant conditions <b>Georgia Atkin-Smith, Walter &amp; Eliza Hall Institute, Australia</b>
0934-0948	Trabid patient mutations impede the axonal trafficking of adenomatous polyposis coli to disrupt neurite growth <b>Hoanh Tran, The Peter Doherty Institute for Infection and Immunity, Australia</b>

**SYM58 - Molecular Basis of Disease - Pathogen resistance and virulence- Room 213**

<b>Chairs</b>	Dena Lyras & Stephanie Gras
0830-0848	<i>Invited Speaker</i> Molecular characterization of streptococcus pyogenes outbreak strains associated with scarlet fever and invasive infections in Australia <b>Mark Walker, University of Queensland, Australia</b>
0848-0906	<i>Invited Speaker</i> Exploring Pneumococcal diversity in the Asia-pacific region <b>Catherine Satzke, Murdoch Children's Research Institute, Australia</b>
0906-0920	First molecular insight into HLA-c contribution to COVID-19 outcome <b>You Min Ahn, La Trobe University, Australia</b>
0920-0934	Deficiency of Dipeptidyl Peptidase 9 enzyme activity is beneficial in an acute COVID-19 mouse model <b>Jasmine Minh Hang Nguyen, The Centenary Institute, Australia</b>
0934-0948	Nucleolar Hendra virus interactions visualised by expansion microscopy <b>Nathan Sos, Monash University, Australia</b>

**SYM59 - Molecular Physiology – Spatiotemporal metabolic homeostasis – Room 217**

<b>Chairs</b>	Marian Walhout & Magdalene Montgomery
0830-0848	<i>Invited Speaker</i> Inter-organ metabolite exchange altered by diet and cardiovascular disease <b>Cholsoo Jang, University of California, USA</b>
0848-0906	<i>Invited Speaker</i> Using proximity proteomics to disentangle metabolism at the interface of lipid droplets, mitochondria and the endoplasmic reticulum <b>Matthew Watt, University of Melbourne, Australia</b>
0906-0920	A meta-analysis of mitochondrial proteomics studies reveals novel mitochondrial proteins that are upregulated by the stress of exercise <b>David Bishop, Victoria University, Australia</b>
0920-0934	Role of skeletal muscle atrophy in chronic liver disease <b>Okka Htin Aung, Monash University, Australia</b>
0934-0948	Characterising the role of the small Toms in mitochondrial disease <b>Bethany Anderson, University of Melbourne, Australia</b>

## THURSDAY

**SYM60 - Structural Biology and Biophysics – Spectroscopy and scattering – Room 218**

<b>Chairs</b>	Amandeep Kaur & Joanna Hicks
0830-0848	<i>Invited Speaker</i> Structural insights into the multifunctionality of rabies virus P3protein <b>Ashish Sethi, Australian Synchrotron (ANSTO), Australia</b>
0848-0906	<i>Invited Speaker</i> Structural plasticity of the coiled-coil interactions in SFPQ <b>Charles Bond, University of Western Australia, Australia</b>
0906-0920	<i>Invited Speaker</i> Measuring 10-30 ångström-scale distances in proteins using 19f endor <b>Nick Cox, Australian National University, Australia</b>
0920-0934	The structure of the marsupial $\gamma\mu$ T cell receptor defines a third T cell lineage in vertebrates <b>Jerome Le Nours, Monash University, Australia</b>
0938-0952	Investigating the effects of naturally occurring antibody Fc polymorphisms on structural dynamics <b>Annmaree Warrender, Australian Synchrotron (ANSTO), Australia</b>

**SYM61 - Microbial World – Emerging pathogens – Room 219**

<b>Chairs</b>	Kei Sato & Belinda de Villiers
0830-0848	<i>Invited Speaker</i> Mosquitoes provide a transmission route between possums and humans for Buruli ulcer in southeastern Australia <b>Andrew Buultjens, University of Melbourne, Australia</b>
0848-0906	<i>Invited Speaker</i> Retroviruses of bats: a threat waiting in the wings? <b>Gilda Tachedjian, Burnet Institute, Australia</b>
0906-0920	Investigating the role of cell surface sialylated glycans in the viral entry of severe acute respiratory syndrome coronavirus 2 (sars-cov-2) variants <b>Justin Richmond Domingo, University of the Philippines, Philippines</b>
0920-0934	Characterization of SARS-CoV-2 pseudoviruses: Investigating spike protein interactions with mammalian cells at membrane and global levels <b>Aishi Dasgupta, Indian Institute of Technology Bombay, India</b>
0934-0948	Molecular mechanisms of SARS-CoV-2 resistance to nirmatrelvir and the countermeasures <b>Haitao Yang, ShanghaiTech University, China</b>

**SYM62 - Biotechnology and Synthetic Biology – Biosensors – Room 220**

<b>Chairs</b>	Rona Chandrawati & Kirill Alexandrov
0830-0848	<i>Invited Speaker</i> Decoding nanoscale features of protein aggregates using fluorescent probes <b>Amandeep Kaur, Monash University, Australia</b>
0848-0906	<i>Invited Speaker</i> What happens when enzymologists set out to make better biosensors for winemakers <b>Wayne Patrick Victoria, University of Wellington, New Zealand</b>
0906-0920	Nucleic acid-based biosensors: advancing biomolecule detection for point-of-care applications <b>Elena Eremeeva Queensland, University of Technology, Australia</b>
0920-0934	Insect odorant receptor-based biosensors for human health applications <b>Mark Agasid, Scentian Bio, New Zealand</b>
0934-0948	Reconstruction of a flagellar stator from homologous structural elements <b>Pietro Ridone, University of New South Wales, Australia</b>

**0950-1020 Morning Tea – Plenary Foyer**

1020-1140 Concurrent Session 13 – Keynotes & Symposia	
KS32 - Climate Change Day	
<b>Chairs</b>	Chris Greening & Hangwei Hu
1020-1052	<i>Keynote Speaker</i> Development and implementation of high throughput screening strategies to identify inhibitors to control greenhouse gas emissions in soils <b>Greg Cook, Queensland University of Technology, Australia</b>
1052-1112	<i>Invited Speaker</i> Dryland fungi and climate change: insights from global research <b>Eleonora Egidi, Western Sydney University, Australia</b>
1112-1126	Quinone extraction drives atmospheric carbon monoxide in bacteria <b>Ashleigh Kropp, Monash University, Australia</b>
1126-1140	Investigating the evolutionary implications of mitochondrial heteroplasmy in response to heat stress in <i>Drosophila melanogaster</i> <b>Jade Kannangara, Monash University, Australia</b>
SYM63 - Bioinformatics, Computational Biology and 'Omics – AI/Machine learning in MD simulations – Room 210	
<b>Chairs</b>	Craig Morton & Hafumi Nishi
1020-1038	<i>Invited Speaker</i> Exploring AI-generated virtual libraries for drug discovery <b>Mark Waller Pending AI, Australia</b>
1038-1056	<i>Invited Speaker</i> Deep-learning model for fast and accurate computation of hydration structures around proteins <b>Takashi Yoshidome, Tohoku University, Japan</b>
1056-1110	Exploring enzyme function using computational tools – insights into catalysis and allostery <b>Wanting Jiao, Victoria University of Wellington, New Zealand</b>
1110-1124	Psichic: physicochemical graph neural network for learning protein-ligand interaction fingerprints from sequence data <b>Anh Thi Ngoc Nguyen, Monash Institute of Pharmaceutical Sciences, Australia</b>
1124-1138	Mitigating structural bias in machine learning-guided peptide design <b>Fabien Plisson, Centre for Research and Advanced Studies of the National Polytechnic Institute, Mexico</b>
SYM64 - Genomics, Gene Regulation and Epigenetics – Post-transcriptional gene regulation – Room 211	
<b>Chairs</b>	Vi Wickramasinghe & Traude Beilharz
1020-1038	<i>Invited Speaker</i> Formation and functions of circular RNAs <b>Greg Goodall, Centre for Cancer Biology, Australia</b>
1038-1056	<i>Invited Speaker</i> Fine-tuning of mitochondrial gene expression <b>Aleksandra Filipovska, University of Western Australia, Australia</b>
1056-1110	The TREX-2 complex is an unidentified mRNA export receptor <b>Tamas Fischer, The John Curtin School of Medical Research, Australia</b>
1110-1124	Epigenetic pathways that regulate the mitochondrial genome and damage responses <b>Steven Zuryn, University of Queensland, Australia</b>
1124-1138	Time-resolved multi-omics illustrates the impact of DNA replication stress on chromatin integrity and pluripotency loss <b>Oswaldo Contreras, Victor Chang Cardiac Research Institute, Australia</b>

## THURSDAY

## KS33 - FAOBMB Award Presentations - Room 212

<b>Chairs</b>	Joon Kim & Usha Hettiaratchi
1020-1100	<i>FAOBMB Research Excellence Awardee</i> Biogenesis, function and potential application of circular RNAs <b>Ling-Ling Chen, Shanghai Institute of Biochemistry and Cell Biology, China</b>
1100-1115	<i>FAOBMB Young Scientist Awardee</i> Depletion of the paternal gut microbiome alters sperm small RNAs and impacts offspring physiology and behavior <b>Carolina De Moura, Gubert Florey Institute, Australia</b>
1115-1130	<i>FAOBMB Young Scientist Awardee</i> Reprogramming host metabolism for broad-spectrum antiviral therapy <b>Shuofeng Yuan, University of Hong Kong, Hong Kong</b>

## SYM65 - ASB/CSCB Joint Session - Fluorescence methods/ DNA damage - Room 213

<b>Chairs</b>	Liz Hinde & Xuebiao Yao
1020-1038	<i>Invited speaker</i> Biomolecular condensation of EB1 guides quality control of cell renewal <b>Xuebiao Yao, University of Science &amp; Technology of China, China</b>
1038-1052	Dynamic phosphorylation of FOXA1 by Aurora B guides post-mitotic gene reactivation <b>Xing Liu, University of Science and Technology of China, China</b>
1052-1106	Visualising epigenetic histone modifications in the T cell nucleus with single molecule expansion microscopy <b>Toby Bell, Monash University, Australia</b>
1106-1120	CSPPI Stabilizes non-centrosomal microtubules by capping the distal ends <b>Zhikai Wang, University of Science and Technology of China, China</b>
1120-1134	Histone FRET microscopy coupled with SPT reveals the chromatin nanoscale landscape to facilitate nuclear protein dynamics <b>Jieqiong Lou, University of Melbourne, Australia</b>

## SYM66 - Molecular Physiology - Exercise is medicine: Tissue crosstalk - Room 217

<b>Chairs</b>	Mark Febbraio & Heather Christofk
1020-1038	<i>Invited Speaker</i> Exercise, adaptive homeostasis and ageing <b>Tony Tiganis, Monash University, Australia</b>
1038-1056	<i>Invited Speaker</i> Identification of novel secretory factors from the heart as new targets for metabolic disease <b>Julie McMullen, Baker Heart &amp; Diabetes Institute, Australia</b>
1056-1110	How space dust settles our mind: discovery of the cell and receptor target of the mood stabiliser lithium <b>Damien Keating, Flinders University, Australia</b>
1110-1124	Fetal glucose infusion normalizes cardiac CaMKII activation and oxphos complex 3 abundance in the sheep fetus exposed to maternal undernutrition in late gestation <b>Melanie Bertossa, University of South Australia, Australia</b>
1124-1138	Low-dose metformin treatment for 14 days normalises cerebral blood flow after ischaemic stroke in rats <b>Anania Tsinoglou, University of Tasmania, Australia</b>

<b>SYM67 - Biotechnology and Synthetic Biology – Industrial protein production – Room 218</b>	
<b>Chairs</b>	Joe Brock & David Wollborn
1020-1038	<i>Invited Speaker</i> Integrated design environment for advanced biomanufacturing (idea bio): learnings on setting up a fermentation biofoundry to develop bioprocesses <b>Axayacatl Gonzalez, University of Queensland, Australia</b>
1038-1056	<i>Invited Speaker</i> The innovative ingredients program at the food and beverage accelerator <b>Esteban Marcellin, University of Queensland, Australia</b>
1056-1110	Directed cho: a new miniaturized directed evolution process for phenotype stability trial test of cho cells before bioreactor scale up <b>Mutsa Takundwa, Council For Scientific &amp; Industrial Research, South Africa</b>
1110-1124	High-throughput optimisation of protein secretion in yeast via an engineered biosensor <b>Joseph Brock, Australian National University, Australia</b>
1124-1138	Engineering encapsulins for targeted enzyme prodrug therapy in cancer treatment <b>Mariia Zmyslia, Albert-Ludwigs University of Freiburg, Germany</b>
<b>SYM68 - Microbial World – Cellular communication – Room 219</b>	
<b>Chairs</b>	Trevor Lithgow & Leo Eberl
1020-1038	<i>Invited Speaker</i> Staphylococcal pore forming toxins require host factors to kill <b>Thomas Naderer, Monash University, Australia</b>
1038-1056	<i>Invited Speaker</i> Specialised metabolism among human pathogenic nocardia <b>Sacha Pidot, University of Melbourne, Australia</b>
1056-1110	Manipulation of mitochondrial functions by legionella pneumophila <b>Kai Qi Yek, University of Melbourne, Australia</b>
1110-1124	Unraveling the multifaceted role of CetZ1 cytoskeletal protein in Archaeal cell dynamics <b>Vinaya Shinde, University of Technology Sydney, Australia</b>
1124-1138	A metabolic cross-talk between immune cells and fungal pathogens determines their fate upon interaction <b>Harshini Weerasinghe, Monash University, Australia</b>
<b>SYM69 - Cell Signalling and Metabolism – Immuno-metabolism – Room 220</b>	
<b>Chairs</b>	Ajithkumar Vasanthakumar & Kylie Quinn
1020-1038	<i>Invited Speaker</i> Microbiota-derived metabolites preserve stem-like CD8 T cell immunity against melanoma <b>Annabell Bachem, University of Melbourne, Australia</b>
1038-1056	<i>Invited Speaker</i> Turning off hyperactive kinases in cardiometabolic diseases <b>Denuja Karunakaran, Monash University, Australia</b>
1056-1110	The effect of human plasma-like media on high salt-affected macrophage activation and the role of arginine <b>Kaitlyn Ritchie, La Trobe University, Australia</b>
1110-1124	Exposure of the inner mitochondrial membrane triggers apoptotic mitophagy <b>Kate McArthur, Monash University, Australia</b>
1124-1138	Investigating the interaction of lipid droplets and stat proteins in antiviral signaling using super-resolution microscopy <b>Abbey Milligan, La Trobe University, Australia</b>
1140-1150	<b>Session change over</b>

## THURSDAY

**1150-1300 Concurrent Session 14 – Keynote, Hot Topics & Symposia****KS34 - Climate Change Day – Plenary Hall 3****Chairs** Zahra Islam & Ulrike Kappler1150-1220 *Keynote Speaker*

Metalloenzyme megacomplexes involved in the hydrogenotrophic methanogenic pathway

**Seigo Shima, Max Planck Institute for Terrestrial Microbiology, Germany**1220-1238 *Invited speaker*

Engineering nitrogenase into plants: progress to date

**Trevor Rapson, CSIRO, Australia**

1238-1252 Structural and mechanistic investigations into the regulation of the plant ethylene-forming enzyme

**Francis Kuang, University of Melbourne, Australia**

1252-1306 Modulating hydrogen flow to reduce emissions and increase productivity of ruminants

**Chris Greening, Monash University, Australia****Hot Topic 1 - Protein chemistry – Room 211****Chairs** Guillaume Lessene & Rebecca Feltham1150-1208 *Invited Speaker*

Tuned for destruction – targeted protein degraders for precision oncology

**Michael Roy, Walter & Eliza Hall Institute, Australia**

1208-1222 Exploring peptide ligand size in relation to target binding affinity and selectivity

**Xuefei Jing, University of Sydney, Australia**

1222-1236 Cell-autonomous decellularised matrices as experimental cancer models for drug discovery and 3D tumour mimics

**Mitchell Lockwood, University of Sydney, Australia**

1236-1250 Directed evolution – one molecule at a time.

**Stefan Mueller, University of Wollongong, Australia****SYM70 - Structural Biology and Biophysics - Protein structure, interactions and molecular assemblies – Room 212****Chairs** James Murphy & Sandhya Visweswariah1150-1208 *Invited Speaker*

Single-molecule imaging of stochastic interactions that drive dynein activation and cargo movement in cells.

**Vaishnavi Ananthanarayanan, University of New South Wales, Australia**1208-1226 *Invited Speaker*

Double trouble—regulation of ubiquitination by DDD complexes

**Peter Mace, University of Otago, New Zealand**

1226-1240 New structure of full-length rat MLKL reveals novel interface for interdomain communication.

**Katherine Davies, Walter & Eliza Hall Institute, Australia**

1240-1254 Switching the PPARG conformation to improve T2DM therapies

**Rebecca Frkic, Australian National University, Australia****SYM71 - Molecular Basis of Disease – Host-pathogen interactions – Room 213****Chairs** Hayley Newton & Emma Grant1150-1208 *Invited Speaker*

Manipulating macrophage antimicrobial pathways in the search for host-directed therapies

**Matthew Sweet, University of Queensland, Australia**1208-1226 *Invited Speaker*

Cell intrinsic immunity to intracellular bacteria

**Elizabeth Hartland, Hudson Institute of Medical Research, Australia**

1226-1240 How do some of us remain asymptomatic during COVID-19?

**Lawton Murdolo, La Trobe University, Australia**

1240-1254 Helicobacter pylori cytotoxin, VacA, hijacks dendritic cell extracellular vesicles

**Ruby Gorman-Batt, Monash University, Australia**

<b>SYM72 - Bioinformatics, Computational Biology and 'Omics - New insights from new bioinformatics tools - Room 217</b>	
<b>Chairs</b>	Miles Benton & Annabel Whibley
1150-1208	<i>Invited Speaker</i> A vision of translational computational pharmacogenomics <b>Michael Menden, University of Melbourne, Australia</b>
1208-1226	<i>Invited Speaker</i> Implementing targeted nanopore sequencing for clinical applications <b>James Ferguson, Garvan Institute, Australia</b>
1226-1240	Complete cryo-EM data processing on bunya HPC virtual desktops <b>Farrah Blades, University of Queensland, Australia</b>
1240-1254	Mapping the molecular landscape of sex- and modality-specific exercise responses in human skeletal muscle through multi-OMICs integration <b>Macsue Jacques, Monash University, Australia</b>
<b>Hot Topic 2 - The microbiome in human health &amp; disease - Room 218</b>	
<b>Chairs</b>	Monica Slavin & Calum Walsh
1150-1204	Human gut microbiome responses to over 300 drugs <b>Daniel Figeys, University of Ottawa, Canada</b>
1204-1218	Harnessing vaginal microbiota metabolites for HIV prevention: elucidating the mechanisms of lactic acid signalling at the cervicovaginal epithelial barrier <b>Brianna Jesaveluk, Burnet Institute, Australia</b>
1218-1232	Targeting gut microbiota through faecal microbiota transplantation attenuates the dystrophic phenotype in mdx mice <b>Cara Timpani, Victoria University, Australia</b>
1232-1246	Time-course changes in fecal microbiome communities up to 12-months after one-anastomosis gastric bypass in morbidly obese Australian patients: a pilot study <b>Colleen Thomas, La Trobe University, Australia</b>
<b>SYM73 - Cell, Developmental and Stem Cell Biology - Spatial biology and tissue heterogeneity in development - Room 220</b>	
<b>Chairs</b>	Raymond Yip & Ruth Arkell
1150-1208	<i>Invited Speaker</i> Spatial transcriptomics reveals temporal and spatial gene dysregulation before the onset of symptoms in a mecp2 mouse model of Rett syndrome <b>Monica Justice, Hospital for Sick Children, USA</b>
1208-1226	<i>Invited Speaker</i> Trans-omic profiling uncovers molecular controls of early human cerebral organoid formation <b>Pengyi Yang, Children's Medical Research Institute, Australia</b>
1226-1240	Notch and Vegf signalling orchestrates endocardial sprouting during cardiac trabeculation <b>Yen Tran, Australian Regenerative Medicine Institute, Australia</b>
1240-1254	Mapping the spatial characteristics of erythroblastic islands and erythroid enucleation <b>Lucas Newton, Swinburne University of Technology, Australia</b>
<b>1300-1415</b>	<b>Lunch - Plenary Foyer</b>
<b>1315-1400</b>	<b>Lunchtime Technical Workshops</b>
<b>Workshop 4 - Protein cryo EM - Room 210</b>	
	<i>Session supported by Thermofisher Scientific</i>
<b>Chairs</b>	Eric Hanssen & Sepideh Valimehr
<b>Speakers</b>	<b>Sepideh Valimehr, University of Melbourne, Australia</b> <b>Manasi Arcot Anil Kumar, University of Melbourne, Australia</b> <b>Gokhan Tolun, University of Wollongong, Australia</b>
<b>Workshop 5 - Digital spatial profiling - Room 211</b>	
<b>Chairs</b>	Kaylene Simpson & Anna Trigos
<b>Speakers</b>	<b>Anna Trigos, Peter MacCallum Cancer Centre, Australia</b> <b>David Kaplan, Peter MacCallum Cancer Centre, Australia</b> <b>Claire Marceaux, Walter &amp; Eliza Hall Institute, Australia</b>

## THURSDAY

**Workshop 6 - Protein Nomenclature: Problems and Possible Solutions – Room 217**

<b>Chair</b>	Zengyi Chang
<b>Speakers</b>	<b>Jun Yu, Beijing Institute of Genomics, China</b> <b>Michele Magrane, EMBL-EBI, United Kingdom</b> <b>Daniel Haft, NIH-NCBI, USA</b>

**Workshop 7 - Everything you wanted to know about publishing but were too afraid to ask! – Room 212**

	<i>Session supported by Portland Press</i>
<b>Chairs</b>	Christina Mitchell & Fiona Whelan
<b>Speakers</b>	<b>Michael Funk, Science Magazine, USA</b> <b>Dario Alessi, Biochemical Journal, United Kingdom</b> <b>Qingqing Xiao, Wiley, China</b>

**1415-1515 Concurrent Session 15 – Plenary, Hot Topics & Symposia****1415-1515 Plenary 7 - FEBS Worldwide Lecture**

<b>Room</b>	Plenary Hall 3
<b>Chairs</b>	FEBS Award Introduction, Maria Kaparakis-Liaskos & Chris McDevitt
1415-1445	<i>Plenary</i> The role of cell lysis in vesiculation, biofilm formation and predatory activity of bacterial vesicles <b>Leo Eberl, University of Zurich, Switzerland</b>
1445-1503	<i>Invited speaker</i> How bacteria fortify their multi-layered cell envelope <b>Waldermar Vollmer, University of Queensland, Australia</b>

**SYM74 - Molecular Basis of Disease Short Talks – Room 210**

<b>Chairs</b>	Sharon Prince & Ilona Concha Grabinger
1415-1425	The role of vesicular leptin receptor trafficking in prostate cancer metastasis <b>Bukuru Nturubika, University of South Australia, Australia</b>
1425-1435	Molecular basis of tumour predisposition in ribosomopathies <b>Olga Zaytseva, John Curtin School of Medical Research, Australia</b>
1435-1445	Enhancing CAR T cell therapy for glioblastoma using extracellular matrix degrading enzymes <b>Zoe Day, La Trobe University, Australia</b>
1445-1455	Investigating the role of hypoxia-immune tumour microenvironment in colorectal cancer using patient-derived organoids <b>Ruobing Zhang, Monash University, Australia</b>
1455-1505	Investigating the immunomodulatory properties of endothelial cell-derived apoptotic bodies <b>Caitlin Vella, La Trobe Institute for Molecular Science, Australia</b>
1505-1515	Dissecting protein quality control in neurodegenerative disease <b>Jiamin Zhao, La Trobe University, Australia</b>

**SYM75 - Structural Biology and Biophysics - Molecular mechanisms using Cryo-EM and dynamic protein complexes – Room 211**

<b>Chairs</b>	Frances Separovic & Wai-Hong Tham
1415-1425	LDB proteins – from homodimers to tetramers to selective heterodimerisation <b>Jacqui Matthews, University of Sydney, Australia</b>
1425-1435	Cryo-EM structure of SRP68/72 reveals an extended dimerization domain with RNA-binding activity <b>Yichen Zhong, University of Sydney, Australia</b>
1435-1445	Controlling a master regulator: elucidating the molecular mechanisms regulating the activity of the aaa atpase p97/vcp <b>Isabelle Rouiller, University of Melbourne, Australia</b>
1445-1455	CryoEM structure of a native fertilization complex of malaria parasites <b>Melanie Dietrich, Walter &amp; Eliza Hall Institute, Australia</b>
1455-1505	The structural scope of the insulin receptor superfamily <b>Nicholas Kirk, Walter &amp; Eliza Hall Institute, Australia</b>
1505-1515	Using cryo-EM to elucidate the structural implications of post-translational modifications on alpha-synuclein amyloid fibrils <b>Aidan Grosas, University of Wollongong, Australia</b>



<b>Hot Topic 3 - Single molecule imaging - Room 212</b>	
<b>Chairs</b>	Winnie Tan & Vaishnavi Ananthanarayanan
1415-1425	Single-molecule super-resolution imaging of deleterious DNA damage <b>Donna Whelan, La Trobe University, Australia</b>
1425-1435	Improving the localisation precision for imaging cardiac sub-cellular remodelling <b>Izzy Jayasinghe, University of NSW, Australia</b>
1435-1445	Oligobodies: development of scFv-oligonucleotide conjugates for biomolecular target detection at the single-molecule level <b>Conall McGuinness, Trinity College Dublin, Australia</b>
1445-1455	Transcription factor dynamics in hippo signalling <b>Ben Kroeger, Monash University, Australia</b>
<b>SYM76 - Climate Change Day - Effects and adaptations to climate change - Room 219</b>	
<b>Chairs</b>	Jade Kannangara & Sasha Tetu
1415-1433	<i>Invited Speaker</i> Adaptive genetic management of a wild population in the face of climate change: the case of the Helmeted Honeyeater <b>Diana Robledo-Ruiz, Monash University, Australia</b>
1433-1451	<i>Invited Speaker</i> Gut microbial communities of marine fishes reflect ecological settings <b>Megan Huggett, Newcastle University, Australia</b>
1451-1501	Ancestral sequence reconstruction of PLA and PHB degrading enzymes <b>Santana Royan, CSIRO, Australia</b>
1501-1511	Inclusion of planetary health and indigenous world-view perspectives in developmental biology education <b>Tara Moynihan, Monash University, Australia</b>
<b>Hot Topic 4 - Illuminating biology: using light to observe and manipulate the brain and body - Room 220</b>	
<b>Chairs</b>	Ethan Scott & Lucy Palmer
1415-1430	Closed loop optogenetic control in zebrafish <b>Itia Favre-Bull, University of Queensland, Australia</b>
1430-1445	Investigating neural circuits relevant to mental illness using optogenetics <b>Elizabeth Manning, University of Newcastle, Australia</b>
1445-1500	Using optogenetic manipulation of the cytoskeleton to investigate cellular identity in pluripotent cells <b>Jessica Greaney, Monash University, Australia</b>
1500-1515	Properties and manipulation of engram cells in the auditory cortex underlying fear learning <b>Marius Rosier, Florey Institute, Australia</b>
<b>1515-1540</b>	<b>Afternoon Tea - Plenary Foyer</b>
<b>1540-1630</b>	<b>Plenary 8 &amp; IUBMB Jubilee Award Ceremony</b> <i>Session supported by Bioplatforms Australia</i>
<b>Room</b>	Plenary Hall 3
<b>Chair</b>	Stephanie Gras
<b>Speaker</b>	Designing biology for a healthy planet and beyond <b>Pamela Silver, Harvard University, USA</b>
<b>1630-1700</b>	<b>Awards, Prizes, Future Conference Presentations &amp; Closing Remarks</b>

## Biomolecular Horizons 2024 Congress Office



T: +61 9645 6311

E: [bmh2024@wsm.com.au](mailto:bmh2024@wsm.com.au)

W: [www.bmh2024.com](http://www.bmh2024.com)

