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 2024 MELBOURNE 22nd ComBio Conference

CONGRESS PROGRAM

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DAILY PROGRAM

SUNDAY 22 September 2024

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

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

0730-1900	**Registration - Plenary Foyer**
0900-0935	**Congress Welcome & Opening**
Room	Plenary Hall 2
0900-0935	**Congress Welcome & Opening**
0935-1020	**Plenary 1 - Artificial Intelligence**
Room	Plenary Hall 2
Chair	Andy Hill
0935-1020	What are protein language models learning to do? **Sergey Ovchinnikov, Massachusetts Institute of Technology, USA**
1020-1030	**Session change over**
1030-1120	**Concurrent session 1 - Keynotes**
KS1 - Bioinformatics, Computational Biology & Omics – Plenary Hall 2	
Chairs	Bernie Pope & Megan Maher
1030-1100	*Keynote speaker* PI3Kα membrane binding is enhanced by ras and associated with altered membrane properties **Jane Allison, University of Auckland, New Zealand**
1100-1120	*Invited speaker* An integrative approach to transforming endogenous molecules into drugs **Peter Bond, Bioinformatics Institute (A*STAR), Singapore**
KS2 - Molecular Basis of Disease – Room 210	
Chairs	Justine Mintern & Jerome Le Nours
1030-1100	*Keynote speaker* Gpr43-mediated regulation of eosinophils in asthma **You-Me Kim, Korea Advanced Institute of Science & Technology, Korea** *FAOBMB Kunio Yagi Lecture*
1100-1120	*Invited speaker* Streptococcus pyogenes pharyngitis elicits systemic and mucosal immune responses against key virulence factors in humans **Danika Hill, Monash University, Australia**

MONDAY

KS3 - Indigenous Pathways – Room 211	
Chairs	Jordon Lima & Cam Raw
1030-1100	*Keynote speaker* (Re)claiming spaces: the incoming waves of Indigenous peoples, ethics and knowledge in biomolecular research and education **Phillip Wilcox, Otago University, New Zealand**
1100-1110	*Invited speaker* GWAS and beyond and precision medicine for Indigenous populations **Megan Leask, University of Otago, New Zealand**
1110-1120	*Invited speaker* What can we dig up from sedimentary ancient DNA? Co-designing the investigation of ancient environmental DNA in Australia **Dawn Lewis, University of Adelaide, Australia**
KS4 - Microbial World – Room 212	
Chairs	Johnson Mak & Annemarie Laumaea
1030-1100	*Keynote speaker* Evolution of SARS-CoV-2 and beyond **Kei Sato, University of Tokyo, Japan**
1100-1120	*Invited speaker* Defining host factors underpinning life-threatening respiratory viral diseases **Katherine Kedzierska, University of Melbourne, Australia**
KS5 – Education – Room 213	
Chairs	Yang Mooi Lim & Joon Kim
1030-1100	*Keynote speaker* Generative, dynamic model of a lysosome organelle **Drew Berry, Walter & Eliza Hall Institute, Australia**
1100-1120	*Invited speaker* Student-centered learning in biochemistry and molecular biology – looking back and looking forward in the journal Biochemistry and Molecular Biology Education **Marilee Benore, University of Michigan-Dearborn, USA**
KS6 - Biotechnology and Synthetic Biology – Room 219	
Chairs	Mibel Aguilar & Irene Yarovsky
1030-1100	*Keynote speaker* Chasing the functions of Mycobacterium tuberculosis glycolipids during infection using membrane biophysics and chemical proteiomics **Shobhna Kapoor, Indian Institute of Technology Bombay, India** *FAOBMB Jisnuson Svasti Lecture*
1100-1120	*Invited speaker* Computational lipidomics of metastatic prostate cancers: lipidome changes, altered membrane properties and chemotherapy resistance **Megan O'Mara, University of Queensland, Australia**
1120-1150	**Morning Tea, Poster Viewing & Exhibition – Exhibition Hall**
1150-1240	**Concurrent session 2 - Keynotes**
KS7 - Biochemical Society Award Talk – Plenary Hall 2	
Chairs	James Murphy & Dario Alessi
1150-1220	*Keynote speaker* Kiss and tell. SMCHD1 - from discovery to a novel therapeutic target **Marnie Blewitt, Walter & Eliza Hall Institute, Australia**
1220-1240	*Invited speaker* The HTLV-1c genomic landscape reveals host-virus interactions **Natasha Jansz, Mater Research, Australia**

MONDAY

KS8 - Molecular Physiology – Room 210	
Chairs	Robyn Murphy & Nimna Perara
1150-1220	*Keynote speaker* Sustaining power: building energy networks in striated muscles **Brian Glancy, National Institutes of Health, USA**
1220-1240	*Invited speaker* Development of robust cell models of ATAD3-linked mitochondrial disease to dissect its function and explore disease pathways **Ann Frazier, Murdoch Children's Research Institute, Australia**
KS9 - Indigenous perspectives: The interconnectedness of health – Room 211	
Chairs	Jessica Buck & Jordon Lima
1150-1220	*Keynote speaker* Healthy country: re-writing the book on Australia **Michael-Shawn Fletcher, University of Melbourne, Australia**
1220-1230	*Invited speaker* A One Health approach to the control of zoonotic soil-transmitted helminths in remote Australian Indigenous communities **Cameron Raw, University of Melbourne, Australia**
1230-1240	*Invited speaker* Towards the development of a nematode expression system **Vanessa Sewell, University of New England, Australia**
KS10 - Structural Biology and Biophysics – Room 212	
	Session supported by Thermofisher Scientific
Chairs	Glenn King & Rosemary Cater
1150-1220	*Keynote speaker* Structural pharmacology of Nav and Cav channels **Nieng Yan, Tsinghua University, China**
1220-1240	*Invited speaker* Living on thin air: the structural basis of atmospheric hydrogen oxidation **Rhys Grinter, University of Melbourne, Australia**
KS11 – Education – Room 213	
Chairs	Nirma Samarawickrema & Daniel Dries
1150-1220	*Keynote speaker* The cultural politics of Indigenous knowledges and stem education **Elizabeth McKinley, University of Melbourne, Australia**
1220-1238	*Invited speaker* Supporting education focussed academics and the student voice **Merlin Crossley, University of New South Wales, Australia**
1238-1239	*Lightning talk* Exploring trans-Tasman students' biochemical literacy: a focus on building laboratory- and workshop-related self-management skills **Katherine Fernandez, Monash University, Australia**
1239-1240	*Lightning talk* First-year students' perceptions of learning biochemistry from case study workshops **Nathan Habila, Monash University, Australia**

MONDAY

KS12 - Genomics, Gene Regulation and Epigenetics – Room 219	
Chairs	Adrienne Sullivan & Scott Berry
1150-1220	*Keynote speaker* Establishing chromatin architecture in early development **Wei Xie, Tsinghua University, China**
1220-1240	*Invited speaker* Hijacking developmental plasticity in cancers **Melanie Eckersley-Maslin, Peter MacCallum Cancer Centre, Australia**
1240-1400	**Lunch, Lightning Talks, Poster Viewing & Exhibition - Exhibition Hall**
1250-1320	Lightning Talks - Theatrette
1300-1400	Poster Presentations
1400-1520	**Concurrent session 3 – Symposia & Keynote**
SYM1 - Cell Signalling and Metabolism – Signalling of metabolic regulation – Plenary Hall 2	
Chairs	Benjamin Parker & Shin-Yee Fung
1400-1418	*Invited speaker* Torin1-sensitive phosphorylation sites on the metabolic regulator AMPK revealed by label-free mass spectrometry **Jon Oakhill, St Vincent's Institute of Medical Research, Australia**
1418-1436	*Invited speaker* Personalised phosphoproteomics **David James, University of Sydney, Australia**
1436-1450	Camkk2: at the interface of nutrient sensing and prostate cancer cell progression **Ayla Orang, Flinders University, Australia**
1450-1504	A1 is induced by pathogen ligands to limit myeloid cell death and nlrp3 inflammasome activation **Kate Lawlor, Hudson Institute of Medical Research, Australia**
1504-1518	Functional phosphoproteomic analysis of insulin signalling in ageing bone **Mriga Dutt, University of Melbourne, Australia**
SYM2 - Bioinformatics, Computational Biology and 'Omics – Proteomics – Room 210	
Chairs	Ho Jeong Kwon & Laura Dagley
1400-1418	*Invited speaker* Optimized dia-ms workflow for host cell proteins (hcp) characterization and quantification in bioreactors and top-down mass spectrometry analysis for monoclonal antibody production **Peter Hoffman, University of South Australia, Australia**
1418-1436	*Invited speaker* Mapping the influenza immunopeptidome: defining conserved targets for influenza immunity **Patricia Illing, Monash University, Australia**
1436-1450	Integrate, automate and interrogate proteomics workflows with MD 2.0 Dataset Service **Mansi Aggarwal, Mass Dynamics, Australia**
1450-1504	Quantitative proteomics in the diagnosis and characterisation of rare genetic diseases **Liana Semcesen, University of Melbourne, Australia**
1504-1518	Shining a light on inflammation **Cassandra Cianciarulo, La Trobe University, Australia**

MONDAY

KS13 - Indigenous Perspectives – Cancer and Immunology – Room 211	
Chairs	Cameron Raw & Justine Clark
1400-1430	*Keynote speaker* Titiro atu ki te taumata o te moana: understanding the broader impact of our biomolecular research **Kimiora Hēnare, University of Auckland, New Zealand**
1430-1445	*Invited speaker* Māu Tēnā Kīwai o te Kete, Māku Tēnei: Applications for precision medicine and third generation sequencing to Māori populations of Te Tairāwhiti Aotearoa **Jordon Lima, University of Otago, New Zealand**
1445-1500	*Invited Speaker* Development of in-depth analyses for Māori health in cancer and coronary artery disease **Helena Abolins-Thompson, University of Otago, New Zealand**
1500-1515	*Invited Speaker* Understanding the biomolecular profile of cancer in Indigenous children **Jessica Buck, Telethon Kids Institute, Australia**
SYM3 - Structural Biology and Biophysics - Membrane biophysics and protein structure – Room 212	
Chairs	Renae Ryan & Shobhna Kapoor
1400-1418	*Invited speaker* Structural and molecular basis of choline uptake into the brain by FLVCR2 **Rosemary Cater, University of Queensland, Australia**
1418-1436	*Invited speaker* Effect of solvent-free environment on the conformations of intrinsically disordered protein **Kamendra Sharma, Indian Institute of Technology Bombay, India**
1436-1450	Combined imaging and multipoint fluorescence correlation spectroscopy for investigating morphogen dynamics in developmental processes **Laura Zoe Kreplin, Monash University, Australia**
1450-1504	The crocodile defensin CpoBD13 defines a novel mechanism of host defence peptide antifungal activity through pH-dependent phospholipid targeting and membrane disruption **Marc Kvansakul, La Trobe University, Australia**
1504-1518	The molecular details of an ovel phosphorylation dependent interaction between the MRN and SOSS DNA repair complexes **Liza Cubeddu, Western Sydney University, Australia**
SYM4 - Genomics, Gene Regulation and Epigenetics - Transcriptional mechanisms – Room 213	
Chairs	Tamas Fischer & Stephin Vervoort
1400-1418	*Invited speaker* Connecting transcriptional and post-transcriptional mRNA fate **Traude Beilharz, Monash University, Australia**
1418-1436	*Invited speaker* Comparative cofactor screens reveal the influence of transactivation domains and core promoters on the mechanisms of transcription **Charles Bell, Mater Research, Australia**
1436-1450	Transcriptomic analyses revealed anticancer effects of gamma-tocotrienol and delta-tocotrienol in three-dimensional multicellular tumour spheroid model of breast cancer **Wan Xin Goh, IMU University, Malaysia**
1450-1504	Menin inhibition as a novel epigenetic therapy for EZH2-driven diffuse large B-cell lymphoma **Rachel Woodhouse, Australian National University, Australia**
1504-1518	Extensive DNA methylome rearrangement during early lamprey embryogenesis **Allegra Angeloni, Garvan Institute, Australia**

MONDAY

SYM5 – Education - Education Award talks – Room 217	
Chairs	Kay Colthorpe & Andrew Moorhouse
1400-1418	Revolutionizing learning with blast.ar - a mobile app framework for biochemistry education **Nuruliza Roslan, University Sains Islam Malaysia, Malaysia**
1418-1436	*ASBMB SDR Scientific Education Award* Development of an open educational resource to improve quantitative literacy in incoming biomedical science students **Julian Pakay, La Trobe University, Australia**
1436-1454	*AuPS Education Award* Navigating the future of higher education: addressing challenges through innovation in technology **Pushpa Sinnayah, Victoria University, Australia**
1454-1512	Supporting our science students - a renewed focus on relationships for student success **Tracey Kuit, University of Wollongong, Australia**
SYM6 - Cell, Developmental and Stem Cell Biology - Autophagy & cell death in organismal homeostasis - Room 218	
Chairs	Gemma Kelly & Julian Carosi
1400-1418	*Invited Speaker* Neuronal cell biology of PINK1/Parkin mitophagy **Michael Lazarou, Walter & Eliza Hall Institute, Australia**
1418-1436	*Invited Speaker* Dominant-negative otulin mutation unviels novel mechanisms in inflammatory disease **Sophia Davidson, Hudson Institute of Medical Research Australia**
1436-1450	Specific liberation of polyunsaturated lysophospholipids during BAK-mediated pore formation in isolated mitochondria **Rachel Uren, Walter & Eliza Hall Institute,Australia**
1450-1504	BECLIN1 is essential for gastrointestinal health. **Juliani Juliani, La Trobe University, Australia**
1504-1518	CLPB disaggregase dysfunction impacts mitochondrial QC machinery. **Megan Baker, University of Melbourne, Australia**
SYM7 - Molecular Physiology – Molecular physiology of muscle – Room 219	
Chairs	Brian Glancy & Robyn Murphy
1400-1418	*Invited Speaker* Compartmentalized glycogen metabolism in skeletal muscle: Influence of the activity of mitochondria, sarcoplasmic reticulum Ca2+ ATPases, Na+-K+ ATPases, and myosin ATPases **Joachim Nielsen, University of Southern Denmark, Denmark**
1418-1436	*Invited Speaker* A single session of high intensity interval training alters calcium homeostasis in human skeletal muscle. **Aldo Meizoso Huesca, University of Queensland, Australia**
1436-1450	Tmem161b is required for the maintenance of cardiac rhythm. **Jessica Briffa, University of Melbourne, Australia**
1450-1504	Manipulating muscle plasticity to improve dystrophic pathology in mouse models of Duchenne muscular dystrophy **Wenlan Li, University of Melbourne, Australia**
1504-1518	Unravelling the role of deubiquitinase ubiquitin-specific-protease-15 in skeletal muscle **Wayne Du, University of Melbourne, Australia**

MONDAY

SYM8 - Biotechnology and Synthetic Biology - Synthetic antimicrobials – Room 220	
Chairs	Constance Baily & Sacha Pidot
1400-1418	*Invited Speaker* Structure activity relationships vs. structure-toxicity relations: a key battle in the design of lipopeptide antibiotics. **Tony Velkov, Monash University, Australia**
1418-1436	*Invited Speaker* Enzyme enabled synthesis of biaryl natural products. **Lauren Murray, Monash University, Australia**
1436-1450	Novel antibacterial aptamers against pseudomonas aeruginosa **Patrick Hock Tan, Monash University, Malaysia**
1450-1504	Targeting proteases for drugs and diagnostics for the three T's: Trpyanosoma, Theileria and Thrichinella **Theresa Coetzer, University of KwaZulu-Natal, South Africa**
1504-1518	High throughput phenotypic platform to screen for novel anthelmintics. **Joseph Byrne, University of Melbourne, Australia**
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	
Chairs	Michael Healy & Isabelle Rouiller
1550-1608	*Invited Speaker* Folding forward: overcoming hurdles in implementing computational structural biology deep learning in Australia **Kate Michie, University of New South Wales, Australia**
1608-1626	*Invited Speaker* Leveraging structure prediction for protein optimisation workflows **Joe Kaczmarksi, Australian Natioanl University, Australia**
1626-1640	Probing conformational heterogeneity of trpv1: a comparison of state-of-the-art methods in cryo-em **Miro Astore, Simons Foundation, USA**
1640-1654	Understanding and exploiting RECQL4 interactions for targeted cancer prevention **Courtney Pilcher, Royal Melbourne Institute of Technology, Australia**
1654-1708	Peering into the unknown: unveiling a putative archaeal RNA virus (thv) **Raphael Caballes, University of New South Wales, Australia**
SYM10 - Bioinformatics, Computational Biology and 'Omics – Metabolomics – Room 210	
Chairs	Mike Barrett & Simone Rochfort
1550-1608	*Invited Speaker* Hexose homeostasis is essential for the virulence of Leishmania parasites. **Eleanor Saunders, University of Melbourne, Australia**
1608-1626	*Invited Speaker* Arginine metabolism is crucial to polymyxin-dependent resistance in Acinetobacter baumannii **Meiling Han, Monash University, Australia**
1626-1640	Spectrum of cellular lipids presented by the four human CD1 family of antigen presenting molecules **Adam Shahine, Monash University, Australia**
1640-1654	Harnessing multi-omics to explore parasitism at the molecular level **Tao Wang, University of Melbourne, Australia**
1654-1708	Biomineralization of short chain organosulfonates: charting metabolic pathways by structural enzymology **Mihwa Lee, University of Melbourne, Australia**

MONDAY

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

MONDAY

SYM14 – Education - Education Short Talks – Room 217	
Chairs	Tracey Kuit & Kathryn Jones
1550-1603	Hitting an iceberg: The impact of generative artificial intelligence (GenAI) on academic integrity in undergraduate science education **Reece Sophocleous, University of Wollongong, Australia**
1603-1616	Molecular biologist AI bots: what works, what doesn't **Alice Huang, University of Sydney, Australia**
1616-1629	Learning as a verb: a framework to engage students with hands-on active learning in physiology **Christian Moro, Bond University, Australia**
1629-1642	Mapping and embedding the core concepts of physiology across the curriculum. **Kathy Tangalakis, Victoria University, Australia**
1642-1655	Professional identity of biomedical science students **Kay Colthorpe, University of Queensland, Australia**
1655-1708	Revolutionizing education: enhancing practical skills and adapting to technological challenges in anatomy and developmental biology. **Sonja McKeown, Monash University, Australia**
SYM15 - Genomics, Gene Regulation and Epigenetics – Non-coding genome – Room 218	
Chairs	Cecile King & Selene Fernandez Valverde
1550-1608	*Invited Speaker* Confined environments induce noncoding-rna paraspeckle condensates. **Archa Fox, University of Western Australia, Australia**
1608-1626	*Invited Speaker* Using genetics to identify novel lncrna therapeutics for breast cancer **Juliet French, QIMR Berghofer, Australia**
1626-1640	Exploring dysregulated long non-coding RNA expression in animal models of drug addiction **Sonia Hesam-Shariati, University of New South Wales, Australia**
1640-1654	Paternal SARS-CoV-2 infection alters sperm noncoding RNA profiles and increases anxiety in offspring. **Elizabeth Kleeman, The Florey Institute, Australia**
1654-1708	RNA isoform landscape in human ipsc-derived microglia in neurodevelopmental disorder context **Rugile Matuleviciute, King's College London, United Kingdom**
SYM16 - Molecular Physiology - Neurophysiology - a focus on new techniques – Room 219	
Chairs	Garron Dodd & Gary Housley
1550-1608	*Invited Speaker* Brain-wide exploration of behaviorally relevant astrocyte signaling **Jun Nagai, Riken Centre for Brain Research, Japan**
1608-1626	*Invited Speaker* Using two-photon calcium imaging to probe neural encoding during behaviour **Lucy Palmer, Florey Institute, Australia**
1626-1640	TRPC channels as a druggable target against secondary brain injury expansion **Georg Von Jonquieres, University of New South Wales, Australia**
1640-1654	Biochemical signatures of motor neuron disease and frontotemporal dementia involve a transient protein folding response in the cortex. **Rebecca San Gil, University of Queensland, Australia**
1654-1708	Novel peptide therapeutics for Alzheimer's disease **Dorothy Wai, Monash University, Australia**

MONDAY

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

DAILY PROGRAM

TUESDAY 24 September 2024 – RNA Technology Day

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

TUESDAY

KS15 - Molecular Physiology Short Talks – Room 210	
Chairs	Paul Gregorevic & Noni Frankenberg
1030-1040	Myocardial protein expression correlates of diastolic function in physiologic & pathologic cardiac conditions **Johannes Janssens, Cedars-Sinai Medical Center, USA**
1040-1050	Maternal diet high in linoleic acid alters renal branching morphogenesis and mTOR/AKT signaling genes. **Deanne Hryciw, Griffith University, Australia**
1050-1100	Phosphoproteomics-directed manipulation reveals SEC22B as a hepatic signaling node governing metabolic actions of glucagon. **Yuqin Wu, Monash University, Australia**
1100-1110	*To be confirmed* Structure and function of the SIT1 proline transporter linked to iminoglycinuria **Irina Lotsaris, University of Sydney, Australia**
1110-1120	Complex IV - a new understanding in muscle wasting diseases. **Ryan Bagaric, Victoria University, Australia**
1120-1130	Characterization of novel inhibitors for triple negative breast cancer: four needles in a haystack **Jo-Anne de la Mare, Rhodes University, South Africa**
KS16 - Cell Signalling and Metabolism – Room 211	
Chairs	Peter Mace & Kate Quinlan
1030-1100	*Keynote Speaker* Protein kinase C unbalanced: dysregulated signalling in cancer vs Alzheimer's disease. **Alexandra Newton, University of California, USA**
1100-1118	*Invited Speaker* PPTC7 antagonizes mitophagy by promoting BNIP3 and NIX degradation via SCFFBXL4. **Julia Pagan, University of Queensland, Australia**
1118-1132	Dissecting the cellular effects of psychedelics on serotonin receptor signalling **Gregory Redpath, University of New South Wales, Australia**
KS17 - Structural Biology and Biophysics – Room 212	
Chairs	Brett Collins & Alisa Glukhova
1030-1100	*Keynote Speaker* The role of protein dynamics in G protein coupled receptor signalling. **Brian Kobilka, Stanford University, USA**
1100-1118	*Invited Speaker* Structural insights into targeting class B1 GPCRs for metabolic diseases **Denise Wootten, Monash University, Australia**
1118-1132	Mechanical activation opens a lipid-lined pore in OSCA ion channels. **Charles Cox, Victor Chang Cardiac Research Institute, Australia**
KS18 - Genomics, Gene Regulation and Epigenetics – Room 213	
Chairs	Rhys Allan & Melanie Eckersley-Maslin
1030-1100	*Keynote Speaker* Rules of engagement for mitotic chromosome folding machines **Job Dekker, University of Massachusetts, USA**
1100-1118	*Invited Speaker* Transposable elements reorganise the 3D genome structure in CDK4/6 inhibitors resistant breast cancer. **Joanna Achinger-Kawecka, Garvan Institute, Australia**
1118-1132	Next generation super-resolution microscopies of nuclear structures **Ashley Rozario, La Trobe University, Australia**

TUESDAY

KS19 - Cell, Developmental and Stem Cell Biology – Room 219	
Chairs	Sharad Kumar & Leonie Quinn
1030-1100	*Keynote Speaker* Supersulfides as an emerging biomolecule for stress response **Hozumi Motohashi, Tohiku University, Japan** *FAOBMB Osamu Hayaishi Lecture*
1100-1118	*Invited Speaker* Caspase-2 in oxidative stress and age-related cancer **Loretta Dorstyn, University of South Australia, Australia**
1118-1132	Using zebrafish as a model to tackle calcific valve disease **Renee Chow, Australian Regenerative Medicine Institute, Australia**
1135-1145	**Session change over**
1145-1250	**Concurrent session 6 - Keynotes**
KS20 - RNA Technology Day – Plenary Hall 3	
Chairs	Colin Pouton & Chun-Xia Zhao
1145-1215	*Keynote Speaker* Innovation in mRNA technology for public health interventions: How meaningful is this for the Africa vaccine manufacturing vision 2040? **Petro Terblanche, Afrigen Biologics & Vaccines, South Africa**
1215-1233	*Invited Speaker* Transient inhibition of type I interferon enhances CD8+ T cell stemness and vaccine protection. **Joanna Groom, Walter & Eliza Hall Institute, Australia**
1233-1247	The landscape of on-target, off-target, and collateral activity of various CRISPR-Cas13 orthologs in human cells **Honglin Chen, Peter MacCallum Cancer Centre, Australia**
KS21 - Precision Medicine – Room 210	
	Session supported by University of Queensland
Chairs	Dominic Ng & Kate Sutherland
1145-1215	*Keynote Speaker* Singapore national precision medicine strategy **John Chambers, Nanyang Technological University, Singapore**
1215-1229	Help or hindrance: A common gain-of-function MLKL polymorphism. **Sarah Garnish, Walter & Eliza Hall Institute, Australia**
1229-1243	Development of a precision oncology program focused on a novel therapeutic target in triple negative breast cancer. **Anderly Chüeh, Monash Biomedicine Discovery Institute, Australia**
KS22 - Cell, Developmental and Stem Cell Biology – Room 211	
Chairs	Leonie Quinn & Sharad Kumar
1145-1215	*Keynote Speaker* Deciphering stem cell roles in driving gastric cancer. **Nick Barker, A*STAR IMCB, Singapore**
1215-1233	*Invited Speaker* Plasticity of stem cells in intestinal regeneration and cancer **Helen Abud, Monash University, Australia**
1233-1247	DNA topoisomerase III Alpha (top3a) is essential for Vegfc-driven lymphatic endothelial cell proliferation in zebrafish. **Kazuhide Okuda, La Trobe University, Australia**

TUESDAY

KS23 - Molecular Basis of Disease – Room 212	
Chairs	Mark Schembri & Dimitra Chatzileontiadou
1145-1215	*Keynote Speaker* Novel biomimetic cellular nanoparticles (CNP) for the treatment and prevention of antibiotic-resistant bacterial infections and sepsis **Victor Nizet, University of California San Diego, USA**
1215-1233	*Invited Speaker* Permanent tenancy or a bad case of squatting? - Tolerance to Haemophilus influenzae infection in human epithelial cells **Ulrike Kappler, University of Queensland, Australia**
1233-1247	Regulation of the composition of bacterial membrane vesicles and their ability to mediate pathogenesis and antimicrobial resistance **Maria Kaparakis-Liaskos, University of Melbourne, Australia**
KS24 - Molecular Physiology – Room 213	
Chairs	Adam Rose & Severine Lamon
1145-1215	*Keynote Speaker* Genome-scale models of transcriptional metabolic wiring and rewiring **Marian Walhout, University of Massachusetts, USA**
1215-1233	*Invited Speaker* Protecting the nervous system across generations with the maternal diet **Roger Pocock, Monash University, Australia**
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. **Dino Premilovac, University of Tasmania, Australia**
KS25 - G.N. Ramachandran Lecture – Room 219	
Chairs	Sheila Nathan & Terry Piva
1145-1225	Design of efficacious, thermotolerant, viral vaccine formulations **Raghavan Varadarajan, Indian Institute of Science, India**
1225-1245	Structural and functional analyses of Burkholderia pseduomallei BPSL1038 revelas a novel Cas-2/VapD sub-family **Chyan Leong Ng, Universiti Kebangsaan, Malaysia**
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	**Michael Healy, University of Queensland, Australia** **Janesha Maddumage, La Trobe University, Australia**
Workshop 2 - Synchrotron Science – Room 211	
	Session supported by ANTSO
Chair	Alan Riboldi-Tunnicliffe
Speakers	**Christopher Szeto, ANSTO, Australia** **Annmaree Warrender, ANSTO, Australia**
Workshop 3 - The Future of Publishing – Room 212	
	Session supported by Portland Press
Chairs	Alisa Glukhova & Merlin Crossley
Speakers	**Benjamin Parker, University of Melbourne, Australia** **Pamela Silver, Harvard University, USA**

TUESDAY

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

TUESDAY

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

TUESDAY

SYM24 - Microbial World - Intra dynamics of microbes and their host – Room 218	
Chairs	Gilda Tachedijan & Victor Nizet
1430-1448	*Invited Speaker* Highly secreted tryptophanyl-trna synthetase as a theranostic target for hypercytokinemic sever sepsis. **Mirim Jin, Gachon University, South Korea**
1448-1506	*Invited Speaker* Elucidation of the virus-stat interface **Gregory Moseley, Monash University, Australia**
1506-1520	Voltage-gated T-type calcium channel blockers reduce apoptotic body mediated SARS-CoV-2 cell-to-cell spread and subsequent cytokine storm. **Kha Phan, La Trobe University, Australia**
1520-1534	Host directed therapy to improve anti-parasitic immunity in volunteers experimentally infected with blood stage malaria. **Damian Oyong, Burnet Institute, Australia**
1534-1548	The isolation and characterisation of a *Faecalibacterium prausnitzii* lytic phage **Mikaela Whitty, La Trobe University, Australia**
SYM25 - Biotechnology and Synthetic Biology - Engineered living materials – Room 219	
Chairs	Bini Zhou & Melissa Call
1430-1448	*Invited Speaker* Engineering vascularized tissues with spontaneous orthogonal cell alignment mimicking native blood vessels **Andrea O'Connor, University of Melbourne, Australia**
1448-1506	*Invited Speaker* Enzyme action for the enhancement of 3D bioprinted engineered living materials **Mark Shannon, Australian National University, Australia**
1506-1520	Bio-based porphyrin synthesis and its photoactive application using engineered Corynebacterium glutamicum **Sung Ok Han, Korea University, South Korea**
1520-1534	Triglyceride-tethered membrane lipase sensor **Samara Bridge, University of Technology Sydney, Australia**
1534-1548	High yield vesicle packaged recombinant protein production from E. coli. **Dan Mulvihill, University of Kent, United Kingdom**
SYM26 - Cell, Developmental and Stem Cell Biology - Cell & developmental biology in disease – Room 220	
Chairs	Hozumi Motohashi & Michael Samuel
1430-1448	*Invited Speaker* The keap1-nrf2 pathway and primary cilia – new partners in lung cancer transformation **Kate Sutherland, Walter & Eliza Hall Institute, Australia**
1448-1506	*Invited Speaker* Targeting lipid metabolism in leukaemic stem cells to induce ferroptosis as a therapeutic strategy for acute myeloid leukaemia **Claudia Bruedigam, QIMR Berghofer, Australia**
1506-1520	The correct allocation and differentiation of endoderm populations during gastrulation is a critical precursor of heart formation. **Ruth Arkell, Australian National University, Australia**
1520-1534	Receptor guanylyl cyclase C and cGMP: gut reactions **Sandhya Visweswariah, Indian Institute of Science, India**
1534-1548	Tumour tissue engineering: modelling cancer with biomaterial-based platforms **Daniela Loessner, Monash University, Australia**
1550-1620	**Afternoon Tea & Poster Viewing - Exhibition Hall**

TUESDAY

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

TUESDAY

SYM30 - Structural Biology and Biophysics - Single molecule biophysics – Room 212	
Chairs	Toby Bell & Senthil Arumugam
1620-1638	*Invited Speaker* Rushing for a spatial-temporal mapping of the intracellular trafficking and secretase processing of amyloid precursor protein and amyloid-beta production **Lou Fourriere-Chea, University of Melbourne, Australia**
1638-1656	*Invited Speaker* Nanoscale biomolecular condensates dynamically cluster synaptic vesicles at the presynapse **Frederic Meunier, University of Queensland, Australia**
1656-1710	Real-time single-molecule observation of chaperone-assisted protein folding **Nicholas Marzano, University of Wollongong, Australia**
1710-1724	The perfringolysin O pore exhibits a hierarchical subunit stoichiometry. **Meijun Liu, Shanghai Jiao Tong University, China**
1724-1738	Single molecule microscopy of a pore forming protein and its co-toxin. **Martin Do, University of New South Wales, Australia**
SYM31- Genomics, Gene Regulation and Epigenetics - Chromatin & epigenetics – Room 213	
Chairs	Phillippa Taberlay & Luke Isbel
1620-1638	*Invited Speaker* Histone FRET microscopy of live cell heterochromatin architecture **Elizabeth Hinde, University of Melbourne, Australia**
1638-1656	*Invited Speaker* GATA3 drives lineage specification in human gastrulation through epigenetic remodelling. **Adrienne Sullivan, University of Adelaide, Australia**
1656-1710	Uncharted cs: mapping methylation-sensitive gata motifs unveils a novel haematopoetic regulatory mechanism. **Sonia Goozee, University of New South Wales, Australia**
1710-1724	Molecular basis of epigenetic silencing by human MORC2 **Shabih Shakeel, Walter & Eliza Hall Institute, Australia**
1724-1738	An atlas of the human ageing epigenome and exercise rejuvenation **Nir Eynon, Australian Regenerative Medicine Institute, Australia**
SYM32 - Molecular Physiology - Cardiac physiology- Room 217	
Chairs	Livia Hool & Lea Delbridge
1620-1638	*Invited Speaker* Cardiotoxicity induced by breast cancer therapy: mechanism and potential mitigation. **Wally Thomas, University of Queensland, Australia**
1638-1656	*Invited Speaker* The cardiomyopathy-associated ALPK3 regulates a proteostasis network at the sarcomeric m-band. **James Mcnamara, Murdoch Childrens Research Institute, Australia**
1656-1710	Dissecting the role of Hopx variants in cardiac remodelling and disease **Amy Hanna, University of Queensland, Australia**
1710-1724	Regulation of cardiac growth and signalling by the protein phosphatase PP2A-B55alpha **Kate Weeks, University of Melbourne, Australia**
1724-1738	Novel role of WDR62 in the regulation of postnatal heart function **Slade Du Randt, University of Queensland, Australia**

TUESDAY

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

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

WEDNESDAY

SYM36 - Protein homeostasis and metabolism in human health and disease – Room 212	
Chairs	Guillaume Thibault & Eun-kyung Jo
0925-0945	*Invited Speaker* Homeostatic mechanisms of the 26S proteasome amidst diverse cellular stress challenges **Min Jae Lee, Seoul National University, South Korea**
0945-1005	*Invited Speaker* Role of arginine methylation on metabolic dysfunction-associated steatotic liver disease **Seung-Hoi Koo, Korea University, South Korea**
1005-1025	*Invited Speaker* The molecular link between autophagy, stress granules, and neurodegenerative disease **Jin-a Lee, Hannam University, South Korea**
KS29 - Bioinformatics, Computational Biology and 'Omics – Room 213	
Chairs	Darren Creek & Simone Rochfort
0925-0955	*Keynote Speaker* Metabolic perturbation of the immune system by Leishmania parasites **Michael Barrett, University of Glasgow, UK**
0955-1013	*Invited Speaker* Proteome profiling of macrophage reprogramming upon dead cell clearance **Maria Tanzer, Walter & Eliza Hall Institute, Australia**
1013-1027	Leveraging AI in predicting protease-specific substrate cleavage sites **Fuyi Li, University of Adelaide, Australia**
ASBMB Special Interest Groups – Room 217	
Chairs	Sacha Pulsford, Laura Osellame & Alison Roennfeldt
0925-0935	*Yeast SIG* Fighting ectoparasites with yeast: developing and deploying a glyco-relevant livestock vaccine against Flystrike **Ed Kerr, CSIRO, Australia**
0935-0945	*Adelaide Protein Group* Microbial progenitors of protein aggregation diseases and infectious aetiology of dementia **Ibrahim Javed, University of South Australia, Australia**
0945-0955	*Perth Protein Group* The mystery of U-to-C RNA editing proteins in plants **Farley Kwok Van Der Giezen, University of Western Australia, Australia**
0955-1005	*Canberra Protein Group* Thermodynamic adaptations guide the evolution of ligand specificity **Rosemary Georgelin, Australian National University, Australia**
1005-1015	*Melbourne Protein Group* MORC2 phosphorylation fine tunes its DNA compaction activity **Winnie Tan, Walter & Eliza Hall Institute, Australia**
1015-1025	*Queensland Protein Group & Sydney Protein Group* Development of a generalisable tryptophan-optimised quenchbody biosensor based on a synthetic nanobody library **Jordan Cater, University of Wollongong, Australia**
KS30 - Chairs Selection: DNA Restriction and Gene Editing – Room 219	
Chair	Nick Hoogenraad
0925-0955	*Keynote Speaker* The many roles of DNA methylation in bacteria **Richard Roberts, New England Biolabs, USA**
0955-1020	*Keynote Speaker* Boosting fetal globin expression via epigenome editing **Merlin Crossley, University of New South Wales, Australia**

WEDNESDAY

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

WEDNESDAY

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

WEDNESDAY

SYM43 - Biotechnology and Synthetic Biology – Self-assembly for synthetic biology – Room 219	
	Session suported by Macquarie University
Chairs	Mibel Aguilar & Christina Cortez-Jugo
1100-1118	*Invited Speaker* Surface-fill peptide hydrogel devilers miRNA to treat mesothelioma **Joel Schneider, National Cancer Institute, USA**
1118-1136	*Invited Speaker* Programming DNA origami for intracellular applications **Jessica Kretzmann, University of Western Australia, Australia**
1136-1150	Self-assembling bioengineered conjugated polymers for biomedical applications **Ben McLean, Royal Melbourne Institute of Technology, Australia**
1150-1204	Determining the action of antimicrobial formulations at the nanoscale using biomimetic bacterial membranes **Anton Le Brun, ANSTO, Australia**
SYM44 - Molecular Basis of Disease – Immunology and disease – Room 220	
Chairs	Matthew Sweet & James Curson
1100-1118	*Invited Speaker* Resolution of stress in chronic inflammatory diseases **Sumaira Hasnain, Mater Research Institute, Australia**
1118-1136	*Invited Speaker* Dnmt3a+/r878h clonal haematopoiesis accelerates atherosclerosis and is associated with increased mutant myelopoiesis and thrombopoiesis in mice **Dragana Dragoljevic, Baker Institute, Australia**
1136-1150	Public T cell clonotypes are selected in HLA-B*57:01+/HIV + patients independently of the viral load **Dimitra Chatzileontiadou, La Trobe University, Australia**
1150-1204	Targeting immune aquaporins to tickle inflammatory diseases **Inês V. da Silva, University of Lisbon, Portugal**
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	
Chairs	Alexis Komor & Gaetan Burgio
1330-1348	*Invited Speaker* Understanding and controlling the plasticity of nucleic acid recognition by CRISPR-Cas9 **Cyntia Taveneau, Monash University, Australia**
1348-1406	*Invited Speaker* Leveraging natural gene drives for feral rodent population suppression **Paul Thomas, South Australian Health & Medical Research Institute, Australia**
1406-1420	Engineering bufotoxin resistance in marsupials **Pierre Ibri, University of Melbourne, Australia**
1420-1434	Genome-wide identification of bacterial genes used in nucleus-forming jumbo phage infection **Kate Harding, University of Otago New Zealand**
1434-1448	Harnessing CRISPR activation to upregulate TTN as a potential treatment for titinopathies **Anthea Lee, University of New South Wales, Australia**

WEDNESDAY

SYM46 - Molecular Basis of Disease - Neurological disease – Room 210	
Chairs	Frederic Meunier & Rebecca San Gil
1330-1348	*Invited Speaker* Developing a novel therapy for motor neuron disease and frontotemporal dementia **Lars Ittner, Macquarie University, Australia**
1348-1406	*Invited Speaker* Deciphering the immune-alpha synuclein interactions in the onset of Parkinson's disease **Nathalie Dehorter, University of Queensland, Australia**
1406-1420	Zooming in: nanoscale considerations in neurodegenerative diseases **Adekunle Bademosi, University of Queensland, Australia**
1420-1434	Unveiling the molecular landscape of tau aggregates in Alzheimer's disease and related disorders **Dorothea Boeken, University of Cambridge United Kingdom**
1434-1448	Multi-omic analysis of kidney organoids as a model of hypoxic injury and maladaptive repair **Ana Nunez Nescolarde, Monash University, Australia**
SYM47 - Microbial World - Antimicrobial resistance – Room 211	
Chairs	Harshini Weerasinghe & Stephanie Neville
1330-1348	*Invited Speaker* A bacterial regulatory mRNA has expanded through the acquisition of repeat insertion sequences and is required for pathogenesis and antibiotic tolerance **Daniel Mediati, University of Technology Sydney, Australia**
1348-1406	*Invited Speaker* Exploring the utility of zinc-ionophores for the treatment of acinetobacter baumannii lung infection **David De Oliveira, University of Queensland, Australia**
1406-1420	Quercetin-loaded Solid Lipid Nanoparticles (SLN-QT): an effective approach for controlling therapeutic resistance in nematodes **Sunidhi Sharma, Thapar Institute Of Engineering And Technology, India**
1420-1434	Studying the novel peptide lactofungin that potentiates the effect of the anti-fungal drug amphotericin b **Chandra Harshita Chavali, University of Queensland, Australia**
1434-1448	Daptomycin-loaded nanoparticles synergistically kill methicillin-resistant staphylococcus aureus **Jhih-Hang Jiang, Monash University, Australia**
SYM48 - Cell, Developmental and Stem Cell Biology - Imaging in cell and developmental biology – Room 212	
Chairs	Hongbin Jin & John Lock
1330-1348	*Invited Speaker* Unveiling embryo developmental potential with advanced photonics **Kylie Dunning, University of Adelaide, Australia**
1348-1406	*Invited Speaker* The Hippo pathway transcription factor Scalloped and its co-factors alter each other's chromatin binding dynamics to modulate transcription in vivo **Samuel Manning, Monash University, Australia"**
1406-1420	Enlightening the role of microtubules in mesenchymal cell migration **Joyce Meiring Utrecht University Netherlands**
1420-1434	Microtubule-dependent pluripotent cell plasticity orchestrated by centrosomal and non-centrosomal switching **Oliver Anderson Australian Regenerative Medicine Institute, Australia**
1434-1448	Organelle mapping in dendrites of human iPSC-derived neurons reveals dynamic functional dendritic Golgi structures **Jingqi Wang, University of Melbourne, Australia**

WEDNESDAY

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

WEDNESDAY

SYM52 - Cell Signalling and Metabolism – Protein degradation – Room 219	
Chairs	Min-jae Lee & Julia Pagan
1330-1348	*Invited Speaker* Proteasome phase separation triggered by ATP depletion **Yasushi Saeki, University of Tokyo, Japan**
1348-1406	*Invited Speaker* Crossing Codes – at the intersection of ubiquitin and glycan **David Komander, Walter & Eliza Hall Institute, Australia**
1406-1420	The cannabis extract PHEC-66 triggers melanoma cell apoptosis **Terrence Piva, RMIT University, Australia**
1420-1434	Crispr-directed chromosomal translocations provide novel insights into leukaemia biology **Teresa Sadras, Peter MacCallum Cancer Centre, Australia**
1434-1448	Extracellular and intracellular functions of V-domain Ig-containing suppressor of T cell activation (VISTA) immune checkpoint protein **Vadim Sumbayev, University of Kent, United Kingdom**
SYM53 - Molecular Physiology – Developmental physiology: Heating it up with advanced imaging in pregnancy and impacts on offspring – Room 220	
Chairs	Janna Morrison & Deanne Hryciw
1330-1348	*Invited Speaker* The vascular voyage: MRI insights into prenatal blood flow and oxygen delivery **Christopher Macgowan, Hospital For Sick Children, Canada**
1348-1406	*Invited Speaker* Extreme heat and pregnancy complications: utilising transdisciplinary approaches to understand physiological mechanisms **Caitlin Wyrwoll, University of Western Australia, Australia**
1406-1420	Influence of multiparity and choline intake during pregnancy on cognition **Valerie Lin, Nanyang Technological University, Singapore**
1420-1434	The role of ErbB4 receptor isoforms in postnatal cardiac development **Robert-Baraka Kibaja, University of Queensland, Australia**
1434-1448	Investigating the immunomodulatory role of PGRMC2 in maternal-fetal membrane interface using organ-on-chip platform **Ryan Lintao, University of the Philippines, Philippines**
1450-1520	**Afternoon Tea - Exhibition Hall**
1520-	**Society Award Presentations**
Australian Society of Biophysics (ASB) Award Presentations – Room 210	
Chair	Elizabeth Hinde
1520-1545	*Young Biophysicist Award* Recipient to be announced
1545-1610	*McAulay-Hope Prize Lecture* **Yuning Hong, La Trobe University, Australia**
Australian Physiological Society (AuPS) Lecture – Room 211	
Chair	Livia Hool
1520-1620	Exercise is medicine: muscle contraction, tissue crosstalk and disease prevention **Mark Febbraio, Monash University, Australia**

WEDNESDAY

Australian Society for Biochemistry and Molecular Biology (ASBMB) Award Presentations – Room 212	
Chair	Ross Hannan
1520-1525	Introductions
1525-1555	*The Shimazdu Research Medal Lecture* Molecular basis of signalling by TIR domain containing proteins **Thomas Ve, Griffiths University, Australia**
1600-1615	*The Eppendorf Edman ECR Award Lecture* Understanding the molecular recognition of Bacteroides fragilis glycosphingolipids by natural killer T-cell receptor **Praveena Thirunavukkarasu, Monash University, Australia**
1620-1650	*The Lemberg Medal Lecture* Building elastic tissue: from the bench to the clinic **Anthony Weiss, University of Sydney, Australia**
Australia & New Zealand Society for Cell & Developmental Biology (ANZSCDB) Award Presentations – Room 213	
Chair	Aleksandra Filipovska
1520-1530	Presentation of awards and photographs
1530-1610	*President's Medal Talk* Golgi and friends: from glycosylation and membrane trafficking to neurodegeneration **Paul Gleeson, University of Melbourne, Australia**
1610-1620	Questions and discussion
1620-1640	*Emerging Leader Talk* Cell identity at the heart of development and disease **Nathan Palpant, Institute for Molecular Bioscience, Australia**
1640-1650	Questions and discussion
New Zealand Society for Biochemistry & Molecular Biology (NZSBMB) Award Presentations - Room 218	
Chairs	Peter Mac
1520-1550	*Custom Science Award for Research Excellence* Identifying isoform variation in autophagy as a cause of Parkinson's disease **Justin O'Sullivan, University of Auckland, New Zealand**
1550-1610	*NZSBMB Early Career Award, supported by Custom Science* Phage anti-CRISPR control by a DNA- and RNA-binding helix–turn–helix protein **Nils Birkholz, University of Otago, New Zealand**
Australian Society for Microbiology (ASM) Presentations – Room 219	
Chairs	Mark Schembri & Dena Lyras
1520-1540	Manipulation of the lysosome by Coxiella burnetii **Hayley Newton, Monash University, Australia**
1540-1600	Genome wide investigation of the paths of antibiotic uptake in Escherichia coli **Karl Hassan, University of Newcastle, Australia**
1600-1620	Evaluation of novel inhibitors against the macrophage infectivity potentiator in Burkholderia pseudomallei and Coxiella burnetii **Mitali Sarkar-Tyson, University of Western Australia, Australia**
1620-1640	Understanding gene regulation in bacterial pathogens to design better therapeutics **John Atack, Griffiths University, Australia**
1640-1700	Unravelling Resistance: Mycolic Acid Biosynthetic Pathway Mutations shield *Gordonia amarae* from the *Saccharibacterium* epiparasite Ca. Mycosynbcater amalyticus infection **Steve Petrovski, La Trobe University, Australia**

WEDNESDAY

OUTREACH EVENT – Plenary Hall 3	
1430-1530	Escorted Visit to the Exhibition
1530-1600	Talk Fest for High School Students
	Society Annual General Meetings
1615-1715	ASB AGM – Room 210
1650-1750	ASBMB AGM – Room 212
1650-1750	ANZSCDB AGM -Room 213
	IUBMB Trainee Session
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
SYM54 - Climate Change Day – Causes and mitigation strategies of greenhouse gas emissions – Plenary Hall 3	
Chairs	Esteban Marcellin & Zahra Islam
0830-0848	*Invited Speaker* Measuring the enteric methane production of beef cows **Marina Fortes, University of Queensland, Australia**
0848-0906	*Invited Speaker* Drug discovery for soil health: developing novel nitrification inhibitors for a greener agriculture **Uta Wille, University of Melbourne, Australia**
0906-0920	Sowing the seeds of evolution: Agriculture alters protein evolution of soil nutrient cycling genes globally **Timothy Ghaly, Macquarie University, Australia**
0920-0934	Native polymer degradation capacity of microorganisms in agricultural soils **Zahra Islam, University of Melbourne, Australia**
0934-0948	CRISPR/cas-based approaches to alter stress tolerance in barley **Goetz Hensel, Heinrich Heine University, Germany**
SYM55 - Cell Signalling and Metabolism - OMICS in cellular regulation – Room 210	
Chairs	Greg Redpath & Sally McCormick
0830-0848	*Invited Speaker* Single-cell omic analysis of diabetes-induced cardiac remodelling: transforming paradigms of cellular and molecular drivers of diabetic cardiomyopathy **Alex Pinto, Baker Institute, Australia**
0848-0906	*Invited Speaker* Global control of the activity and level of RNA polymerase II **Alexander Gillis, University of New South Wales, Australia**
0906-0920	Systems genetics identifies alpha-defensin-26 peptides as key determinates metabolic health **Stewart Masson, University of Sydney, Australia**
0920-0934	A novel role for lipid droplets as extracellular communicators during virus infection **Ebony Monson, La Trobe University, Australia**
0934-0948	Defining novel AMPK substrates by lysosome-enriched phosphoproteomics **Ashfaqul Hoque, St Vincent's Institute of Medical Research, Australia**
SYM56 - Genomics, Gene Regulation and Epigenetics - Computational genomics – Room 211	
Chairs	Jessica Mar & Belinda Phipson
0830-0848	*Invited Speaker* Genome-wide de novo tandem repeat variation in a four-generation family extensively sequenced with multiple long- and short-read technologies **Harriet Dashnow, University of Colorado, USA**
0848-0906	*Invited Speaker* Roundhound: detecting plasmid transmission from short-read datasets **Leah Roberts, Queensland University of Technology, Australia**
0906-0920	Deciphering the genetic code of autoimmunity: finding the function of autoimmune risk variants **Viacheslav Kriachkov, Walter & Eliza Hall Institute, Australia**
0920-0934	Under-appreciated and overlooked: Mapping the identity, molecular diversity and eDNA context of New Zealand's freshwater sponge species **Ella Dewar, University of Otago, New Zealand**
0934-0948	An atlas of sex-specific epigenetic ageing across eight human tissues **Danielle Hiam, Deakin University, Australia**

THURSDAY

SYM57 - Cell, Developmental and Stem Cell Biology – Intracellular trafficking and extracellular vesicles - Room 212	
Chairs	Paul Gleeson & Pamali Fonseka
0830-0848	*Invited Speaker* Structure of the endosomal Commander complex mutated in Ritscher-Schinzel syndrome: combining crystallography, cryoEM and AlphaFold2 **Brett Collins, University of Queensland, Australia**
0848-0906	*Invited Speaker* Phospholipid scrambling: a novel regulator of extracellular vesicle cargo packaging and function **Sarah Stewart, La Trobe University, Australia**
0906-0920	Ubiquitin K29 chains regulate the biogenesis of extracellular vesicles **Yoon Lim, University of South Australia, Australia**
0920-0934	In vivo visualization of endothelial cell-derived extracellular vesicle formation in stedy state and malignant conditions **Georgia Atkin-Smith, Walter & Eliza Hall Institute, Australia**
0934-0948	Trabid patient mutations impede the axonal trafficking of adenomatous polyposis coli to disrupt neurite growth **Hoanh Tran, The Peter Doherty Institute for Infection and Immunity, Australia**
SYM58 - Molecular Basis of Disease - Pathogen resistance and virulence- Room 213	
Chairs	Dena Lyras & Stephanie Gras
0830-0848	*Invited Speaker* Molecular characterization of streptococcus pyogenes outbreak strains associated with scarlet fever and invasive infections in Australia **Mark Walker, University of Queensland, Australia**
0848-0906	*Invited Speaker* Exploring Pneumococcal diversity in the Asia-pacific region **Catherine Satzke, Murdoch Children's Research Institute, Australia**
0906-0920	First molecular insight into HLA-c contribution to COVID-19 outcome **You Min Ahn, La Trobe University, Australia**
0920-0934	Deficiency of Dipeptidyl Peptidase 9 enzyme activity is beneficial in an acute COVID-19 mouse model **Jasmine Minh Hang Nguyen, The Centenary Institute, Australia**
0934-0948	Nucleolar Hendra virus interactions visualised by expansion microscopy **Nathan Sos, Monash University, Australia**
SYM59 - Molecular Physiology – Spatiotemporal metabolic homeostasis – Room 217	
Chairs	Marian Walhout & Magdalene Montgomery
0830-0848	*Invited Speaker* Inter-organ metabolite exchange altered by diet and cardiovascular disease **Cholsoon Jang, University of California, USA**
0848-0906	*Invited Speaker* Using proximity proteomics to disentangle metabolism at the interface of lipid droplets, mitochondria and the endoplasmic reticulum **Matthew Watt, University of Melbourne, Australia**
0906-0920	A meta-analysis of mitochondrial proteomics studies reveals novel mitochondrial proteins that are upregulated by the stress of exercise **David Bishop, Victoria University, Australia**
0920-0934	Role of skeletal muscle atrophy in chronic liver disease **Okka Htin Aung, Monash University, Australia**
0934-0948	Characterising the role of the small Toms in mitochondrial disease **Bethany Anderson, University of Melbourne, Australia**

THURSDAY

SYM60 - Structural Biology and Biophysics – Spectroscopy and scattering – Room 218	
Chairs	Amandeep Kaur & Joanna Hicks
0830-0848	*Invited Speaker* Structural insights into the multifunctionality of rabies virus P3protein **Ashish Sethi, Australian Synchrotron (ANSTO), Australia**
0848-0906	*Invited Speaker* Structural plasticity of the coiled-coil interactions in SFPQ **Charles Bond, University of Western Australia, Australia**
0906-0920	*Invited Speaker* Measuring 10-30 ångström-scale distances in proteins using 19f endor **Nick Cox, Australian National University, Australia**
0920-0934	The structure of the marsupial γμ T cell receptor defines a third T cell lineage in vertebrates **Jerome Le Nours, Monash University, Australia**
0938-0952	Investigating the effects of naturally occurring antibody Fc polymorphisms on structural dynamics **Annmaree Warrender, Australian Synchrotron (ANSTO), Australia**
SYM61 - Microbial World – Emerging pathogens – Room 219	
Chairs	Kei Sato & Belinda de Villiers
0830-0848	*Invited Speaker* Mosquitoes provide a transmission route between possums and humans for Buruli ulcer in southeastern Australia **Andrew Buultjens, University of Melbourne, Australia**
0848-0906	*Invited Speaker* Retroviruses of bats: a threat waiting in the wings? **Gilda Tachedjian, Burnet Institute, Australia**
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 **Justin Richmond Domingo, University of the Philippines, Philippines**
0920-0934	Characterization of SARS-CoV-2 pseudoviruses: Investigating spike protein interactions with mammalian cells at membrane and global levels **Aishi Dasgupta, Indian Institute of Technology Bombay, India**
0934-0948	Molecular mechanisms of SARS-CoV-2 resistance to nirmatrelvir and the countermeasures **Haitao Yang, Shanghaitech University, China**
SYM62 - Biotechnology and Synthetic Biology – Biosensors – Room 220	
Chairs	Rona Chandrawati & Kirill Alexandrov
0830-0848	*Invited Speaker* Decoding nanoscale features of protein aggregates using fluorescent probes **Amandeep Kaur, Monash University, Australia**
0848-0906	*Invited Speaker* What happens when enzymologists set out to make better biosensors for winemakers **Wayne Patrick Victoria, University of Wellington, New Zealand**
0906-0920	Nucleic acid-based biosensors: advancing biomolecule detection for point-of-care applications **Elena Eremeeva Queensland, University of Technology, Australia**
0920-0934	Insect odorant receptor-based biosensors for human health applications **Mark Agasid, Scentian Bio, New Zealand**
0934-0948	Reconstruction of a flagellar stator from homologous structural elements **Pietro Ridone, University of New South Wales, Australia**
0950-1020	**Morning Tea – Plenary Foyer**

THURSDAY

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

THURSDAY

KS33 - FAOBMB Award Presenations – Room 212	
Chairs	Joon Kim & Usha Hettiaratchi
1020-1100	*FAOBMB Research Excellence Awardee* Biogenesis, function and potential application of circular RNAs **Ling-Ling Chen, Shanghai Institute of Biochemistry and Cell Biology, China**
1100-1115	*FAOBMB Young Scientist Awardee* Depletion of the paternal gut microbiome alters sperm small RNAs and impacts offspring physiology and behavior **Carolina De Moura, Gubert Florey Institute, Australia**
1115-1130	*FAOBMB Young Scientist Awardee* Reprogramming host metabolism for broad-spectrum antiviral therapy **Shuofeng Yuan, University of Hong Kong, Hong Kong**
SYM65 - ASB/CSCB Joint Session – Fluorescence methods/ DNA damage – Room 213	
Chairs	Liz Hinde & Xuebiao Yao
1020-1038	*Invited speaker* Biomolecular condensation of EB1 guides quality control of cell renewal **Xuebiao Yao, University of Science & Technology of China, China**
1038-1052	Dynamic phosphorylation of FOXA1 by Aurora B guides post-mitotic gene reactivation **Xing Liu, University of Science and Technology of China, China**
1052-1106	Visualising epigenetic histone modifications in the T cell nucleus with single molecule expansion microscopy **Toby Bell, Monash University, Australia**
1106-1120	CSPP1 Stabilizes non-centrosomal microtubules by capping the distal ends **Zhikai Wang, University of Science and Technology of China, China**
1120-1134	Histone FRET microscopy coupled with SPT reveals the chromatin nanoscale landscape to facilitate nuclear protein dynamics **Jieqiong Lou, University of Melbourne, Australia**
SYM66 - Molecular Physiology – Exercise is medicine: Tissue crosstalk – Room 217	
Chairs	Mark Febbraio & Heather Christofk
1020-1038	*Invited Speaker* Exercise, adaptive homeostasis and ageing **Tony Tiganis, Monash University, Australia**
1038-1056	*Invited Speaker* Identification of novel secretory factors from the heart as new targets for metabolic disease **Julie McMullen, Baker Heart & Diabetes Institute, Australia**
1056-1110	How space dust settles our mind: discovery of the cell and receptor target of the mood stabiliser lithium **Damien Keating, Flinders University, Australia**
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 **Melanie Bertossa, University of South Australia, Australia**
1124-1138	Low-dose metformin treatment for 14 days normalises cerebral blood flow after ischaemic stroke in rats **Anania Tsinoglou, University of Tasmania, Australia**

THURSDAY

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

THURSDAY

1150-1300	Concurrent Session 14 – Keynote, Hot Topics & Symposia
KS34 - Climate Change Day – Plenary Hall 3	
Chairs	Zahra Islam & Ulrike Kappler
1150-1220	*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 Feltham
1150-1208	*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 Visweswariah
1150-1208	*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 Grant
1150-1208	*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**

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

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Workshop 6 - Protein Nomenclature: Problems and Possible Solutions – Room 217	
Chair	Zengyi Chang
Speakers	**Jun Yu, Beijing Institute of Genomics, China** **Michele Magrane, EMBL-EBI, United Kingdom** **Daniel Haft, NIH-NCBI, USA**
Workshop 7 - Everything you wanted to know about publishing but were too afraid to ask! – Room 212	
	Session supported by Portland Press
Chairs	Christina Mitchell & Fiona Whelan
Speakers	**Michael Funk, Science Magazine, USA** **Dario Alessi, Biochemical Journal, United Kingdom** **Qingqing Xiao, Wiley, China**
1415-1515	**Concurrent Session 15 – Plenary, Hot Topics & Symposia**
1415-1515	**Plenary 7 - FEBS Worldwide Lecture**
Room	Plenary Hall 3
Chairs	FEBS Award Introduction, Maria Kaparakis-Liaskos & Chris McDevitt
1415-1445	*Plenary* The role of cell lysis in vesiculation, biofilm formation and predatory activity of bacterial vesicles **Leo Eberl, University of Zurich, Switzerland**
1445-1503	*Invited speaker* How bacteria fortify their multi-layered cell envelope **Waldermar Vollmer, University of Queensland, Australia**
SYM74 - Molecular Basis of Disease Short Talks – Room 210	
Chairs	Sharon Prince & Ilona Concha Grabinger
1415-1425	The role of vesicular leptin receptor trafficking in prostate cancer metastasis **Bukuru Nturubika, University of South Australia, Australia**
1425-1435	Molecular basis of tumour predisposition in ribosomopathies **Olga Zaytseva, John Curtin School of Medical Research, Australia**
1435-1445	Enhancing CAR T cell therapy for glioblastoma using extracellular matrix degrading enzymes **Zoe Day, La Trobe University, Australia**
1445-1455	Investigating the role of hypoxia-immune tumour microenvironment in colorectal cancer using patient-derived organoids **Ruobing Zhang, Monash University, Australia**
1455-1505	Investigating the immunomodulatory properties of endothelial cell-derived apoptotic bodies **Caitlin Vella, La Trobe Institute for Molecular Science, Australia**
1505-1515	Dissecting protein quality control in neurodegenerative disease **Jiamin Zhao, La Trobe University, Australia**
SYM75 - Structural Biology and Biophysics - Molecular mechanisms using Cryo-EM and dynamic protein complexes – Room 211	
Chairs	Frances Separovic & Wai-Hong Tham
1415-1425	LDB proteins – from homodimers to tetramers to selective heterodimersation **Jacqui Matthews, University of Sydney, Australia**
1425-1435	Cryo-EM structure of SRP68/72 reveals an extended dimerization domain with RNA-binding activity **Yichen Zhong, University of Sydney, Australia**
1435-1445	Controlling a master regulator: elucidating the molecular mechanisms regulating the activity of the aaa atpase p97/vcp **Isabelle Rouiller, University of Melbourne, Australia**
1445-1455	CryoEM structure of a native fertilization complex of malaria parasites **Melanie Dietrich, Walter & Eliza Hall Institute, Australia**
1455-1505	The structural scope of the insulin receptor superfamily **Nicholas Kirk, Walter & Eliza Hall Institute, Australia**
1505-1515	Using cryo-EM to elucidate the structural implications of post-translational modifications on alpha-synuclein amyloid fibrils **Aidan Grosas, University of Wollongong, Australia**

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

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