SUNDAY 27 SEPTEMBER 2015

15:00 – 19:00

REGISTRATION
Location: Exhibition Hall Concourse

15:00 – 17:00

CAREER DEVELOPMENT SYMPOSIUM
FROM THE BENCH TO THE REAL WORLD:
DIVERSITY OF CAREERS POST-PHD

Convenors: A/Prof Samantha Richardson, ASBMB
A/Prof Ros Gleadow, ASPS

Location: Clarendon Rooms A & B,
Level 5 of the Melbourne Exhibition Centre

Ms Sarah Brooker, Science in Public
Dr Martin Elhay, University of Melbourne
Dr Sarah Hennebry, Freehills Patent Attorneys
Dr Jennifer Henry, Association of Women on Campus,
University of Melbourne
Dr Steven Kotsonis, Orica
Dr Jessica Lyle, Australian Vegetable Growers Industry Group
Dr Julie Milland, ScribblersInc
Dr Len Pattenden, CSL
Ms Belinda Smith, Cosmos Magazine
Mrs Sandie Tassone, PPDI - Pharmaceutical Product Development International
Dr Laura Zamurs, Pascoe Vale Girls’ Secondary College
07:30 – 08:30

REGISTRATION

Location: Exhibition Hall Concourse

08:30 - 08:45

CONFERENCE OPENING
AND
ACKNOWLEDGEMENT OF COUNTRY

Chairs: A/Prof Marie Bogoyevitch, University of Melbourne, VIC
A/Prof Ed Newbigin, University of Melbourne, VIC
Co-Chairs, ComBio2015 Local Organizing Committee

Location: Plenary Hall 3

Professor Michael Ryan, Monash University, VIC
ASBMB President

Professor John Evans, Australian National University, ACT
ASPS President

A/Prof Carol Wicking, University of Queensland, QLD
ANZSCDB President

A/Prof Kerry Loomes, University of Auckland, New Zealand
NZSBMB Secretary

A/Prof Rainer Hofmann, Lincoln University, New Zealand
NZSPB President
PLENARY LECTURE

Chair: Professor Rod Devenish, Monash University, VIC
Location: Plenary Hall 3

PLE-MON-01
Chaperone-mediated autophagy: What is new and unique
Cuervo, A.M. (USA)

Dr Ana Maria Cuervo

Dr Ana Maria Cuervo is the Robert and Renee Belfer Chair for the Study of Neurodegenerative Diseases, Professor in the Departments of Developmental and Molecular Biology and of Medicine of the Albert Einstein College of Medicine and co-director of the Einstein Institute for Aging Studies. She obtained her MD degree and PhD from the University of Valencia, Spain, and received postdoctoral training at Tufts University, Boston. In 2002, she started her laboratory at the Albert Einstein College of Medicine, where she continues her studies in the role of protein-degradation in neurodegenerative diseases and aging. Dr Cuervo’s group is interested in understanding how altered proteins can be eliminated from the cells through the lysosomal system and how malfunction of autophagy in aging is linked to neurodegenerative diseases. Dr Cuervo has been the recipient of numerous prestigious awards. She is currently co-Editor-in-Chief of Aging Cell and Associate Editor of Autophagy. Dr Cuervo is currently a member of the NIA Scientific Council and of the NIH Council of Councils.
PLE-NY-02
Structural and functional characterization of the NF-Y genes in mammals and plants

Professor Roberto Mantovani

Roberto Mantovani received his Medical degree in 1985 from the University of Milan, honored with a best thesis Award by the MIT Club of Italy. From 1988 to 1992, he was an EMBO long term and ULP fellow in C. Benoist and D. Mathis’ laboratory at the LGME, in Strasbourg, where he started to work on the NF-Y transcription factor. In 1993, he established his own group at the Department of Genetics of the University of Milan. In 1998, he was appointed Associate Professor at the Department of Animal Sciences of the University of Modena. In 2003, he moved to the Department of Biomolecular Sciences of the University of Milan, becoming Full Professor of Genetics in 2005. He has been on the Boards of the Italian Genetics Association and the Italian Society of Molecular Biology, and he is currently in the Senate of the University of Milan. Research in Dr Mantovani’s laboratory is focussed on regulation of gene expression, notably on the NF-Y and p63 transcription factors. Specifically, the laboratory has led studies on the NF-Y trimer in mammals. The laboratory’s recent contributions include the structure of NF-Y in complex with its CCAAT target sequence, the identification of its regulome by genomic and functional studies, and the classification and interactions of the expanded NF-Y subunits in plants.
PLENARY LECTURE

Chair: Professor James Whelan, La Trobe University, VIC
Location: Plenary Hall 3

PLE-MON-03
Encyclopedia of eukaryotic DNA methylation - from patterns to mechanisms and functions

A/Prof Bob Schmitz

Bob Schmitz earned his BSc in Molecular and Cellular Biology from the University of Arizona and his PhD in Genetics from the University of Wisconsin-Madison. Postdoctoral training was performed at the Salk Institute. In 2013, Bob joined the Genetics Department at the University of Georgia, where his lab is studying how phenotypic plasticity and diversity are driven by natural epigenetic variation. His lab uses a combination of molecular genetics and epigenomic approaches on plant populations to understand the impact that natural epigenetic alleles (epialleles) have on life history traits. Additionally, his lab is interested in epigenetic reprogramming mechanisms and the roles of small RNAs/DNA methylation in silencing deleterious sequences such as transposable elements.

10:45 – 11:25  MORNING TEA / EXHIBITION / POSTERS
Location: Exhibition Hall
11:25 – 12:55

SYMPOSIUM 1

FROM STRUCTURES TO DISEASE

Chairs: Dr Begoña Heras, La Trobe University, VIC
Dr Michelle Dunstone, Monash University, VIC

Location: Room 219

11:25 SYM-01-01
Molecular mechanisms of metal ion homeostasis in Streptococcus pneumoniae

11:45 SYM-01-02
Combating multidrug resistance in Neisseria: Structure of an endotoxin modifying enzyme

12:05 SYM-01-03
Sequence, structural, and functional classification of a diverse superfamily of flavin/deazaflavin oxidoreductases (FDORs) in mycobacteria
Jackson, C.J., Ahmed, F.H. and Carr, P.D. (Australia)

12:25 SYM-01-04
Defensin recognition of phophatidic acid triggers the formation of diverse protein-lipid oligomeric assemblies

12:40 SYM-01-05
The Anopheles-midgut APN1 structure reveals a new malaria transmission-blocking vaccine epitope
11:25 – 12:55

SYMPOSIUM 2

PUTTING CANCER UNDER THE MICROSCOPE: FOCUS ON DISEASE BIOLOGY

Chairs: Dr Erica Sloan, Monash University, ViC
A/Prof Steve Lane, QIMR Berghofer Medical Research Institute, QLD

Location: Plenary Hall 3

11:25 SYM-02-01
Visualizing how cellular contractility is regulated during oncogenic cell extrusion

11:45 SYM-02-02
The polarity protein, Par3, is a key regulator of haematopoietic progenitors

12:05 SYM-02-03
Using four-dimensional (4D) imaging for understanding breast tumor development
Rios, A. (Australia)

12:25 SYM-02-04
Imaging chromatin dynamics during the DNA damage response
Hinde, E., Dalkic, E., Cesare, A. and Gaus, K. (Australia)

12:40 SYM-02-05
Live cell imaging of sugars and lipids in prostate cancer
11:25 – 12:55

SYMPOSIUM 3

NOVEL DIAGNOSTICS, TOOLS AND THERAPEUTICS AGENTS IN NEURONAL SYSTEMS

Chairs: A/Prof Alice Pebay, University of Melbourne, VIC
Dr Craig Morton, St Vincent’s Institute of Medical Research, VIC

Location: Room 216

11:25 SYM-03-01
Genomics, genome engineering and functional studies aimed at treatment in genetic eye disease
Jamieson, R.V., Sabri, A., Cheng, A. and Greenlees, R. (Australia)

11:45 SYM-03-02
BDNF mimetic peptides: Novel promoters of peripheral and central myelination
Hughes, R.A., Murray, S.S. and Xiao, J. (Australia)

12:05 SYM-03-03
Diverse macrocycles as drugs and imaging agents from methods in chemical biology
Soe, C.Z., Tieu, W., Lifa, T., Ejje, N. and Codd, R. (Australia)

12:25 SYM-03-04
Harnessing human genetics to discover novel molecular pathways for neuronal development
Heng, J. (Australia)

12:40 SYM-03-05
The N-glycosylation profile of immunoglobulin G in Parkinson's disease
11:25 SYM-04-01  
Global variability in leaf respiration and its temperature response  
Atkin, O.K., Heskel, M., O'Sullivan, O.S., Bloomfield, K.J., Reich, P.B., Tjoelker, M.G., Huntingford, C. and Martinez-De La Torre, A. (Australia, USA and UK)

11:45 SYM-04-02  
Matching demand with supply; shoot signalling to regulate root aquaporins  

12:05 SYM-04-03  
ASPS 2015 Functional Plant Biology Best Paper Award Lecture  
Physiological basis of salt stress tolerance in rice expressing the antiapoptotic gene SfIAP  
Hoang, T.M.L., Williams, B., Khanna, H., Dale, J. and Mundree, S.G. (Australia)

12:25 SYM-04-04  
Sorghum mutants with altered cyanogenic potential as a resource for crop improvement and food security  
Blomstedt, C.K., Neilson, E.H., Rosati, V., Fromhold, S., Quinn, A., Neale, A.D., Moller, B.L. and Gleadow, R.M. (Australia and Denmark)

12:40 SYM-04-05  
Temperature-dependent metabolic adaptation of wheat seedlings to anoxia  
Huang, S., Shingaki-Wells, R., Alexova, R., Peterit, J. and Millar, H. (Australia)
SYMPOSIUM 5

HOT TOPICS IN REGENERATIVE AND DEVELOPMENTAL BIOLOGY

Chairs: Dr Annemiek Beverdam, University of New South Wales, NSW
Dr Louise Cheng, Peter MacCallum Cancer Inst, VIC

Location: Room 217

11:25 SYM-05-01
A new adult in only 8 days: Whole body regeneration in a chordate model
Zondag, L., Rutherford, K., Gemmell, N. and Wilson, M.J. (New Zealand)

11:45 SYM-05-02
MicroRNAs, sugars and neuronal migration
Pocock, R. (Australian and Denmark)

12:05 SYM-05-03
New regulators of mammalian sex determination and gonad development
Rastetter, R.H., Wilson, S., Windley, S., Hughes, J., Calvel, P., Schwarz, Q., Nef, S., Kumar, S., Thomas, P. and Wilhelm, D (Australia and Switzerland)

12:25 SYM-05-04
The histone acetyltransferase, MOZ, cooperates with the trithorax protein MLL1 and opposes the action of the polycomb repressor BMI1
Sheikh, B.N., Voss, A.K. and Thomas T. (Australia and Germany)

12:40 SYM-05-05
Twist1 in different guises: Dimerisation of partners of Twist1 in craniofacial development
11:25 – 12:55

SYMPOSIUM 6

PLANT MICROBE INTERACTIONS

Chairs: Dr Kim Plummer, La Trobe University, VIC
Dr Kar-Chun Tan, Curtin University, WA

Location: Room 220

11:25 SYM-06-01
How to be a good pathogen: molecular interactions in the fusarium-wheat pathosystem

11:45 SYM-06-02
Understanding the molecular basis of effector-triggered immunity and susceptibility in fungal-plant interactions: a structural biology approach

12:05 SYM-06-03
The rice resistance proteins RGA4 and RGA5 interact functionally and physically to recognize two distinct magnaporthe oryzae effectors: introduction to the integrated decoy hypothesis
Cesari, S., Kanzaki, H., Fujiwara, T., Moncuquet, P., Bernoux, M., Terauchi, R., Kroj, T. and Dodds, P. (Australia, Japan and France)

12:25 SYM-06-04
Harnessing the power of transcriptome sequencing to identify avirulence effector genes of the tomato leaf mould pathogen Cladosporium fulvum
12:40 SYM-06-05
Differential accumulation of callose, arabinoxylan and cellulose in nonpenetrated versus penetrated papillae on leaves of barley infected with *Blumeria graminis* f. sp. *Hordei*
Professor Martin Caffrey

Martin Caffrey grew up in Dublin and was awarded a first-class Honours degree in Agricultural Science at University College Dublin in 1972. With an MS in Food Science and a PhD in Biochemistry from Cornell University, Ithaca, New York, he embarked on a professorial career in the Chemistry Department at Ohio State University, Columbus, Ohio. In 2003, he returned to Ireland to establish the multidisciplinary Centre for Membrane Structural and Functional Biology at the University of Limerick with funding from Science Foundation Ireland and the National Institutes of Health, USA. Its mission is to establish the molecular bases for biomembrane assembly and stability and to understand how membranes transform and transmit signals in health and disease. In 2009, his research group moved to Dublin when Professor Caffrey received a Personal Chair at Trinity College Dublin with joint appointments in the School of Medicine and the School of Biochemistry and Immunology.
Recreating the kidney from stem cells: Applications in regenerative and personalised medicine
Little, M.H. (Australia)

Professor Melissa Little

Professor Melissa Little heads the Kidney Research Laboratory at Murdoch Children’s Research Institute, Royal Children’s Hospital, Melbourne and is a Professor in the Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne. An alumnus of The University of Queensland, she worked for more than 20 years at the Institute for Molecular Bioscience, where her research focussed on the molecular basis of kidney development, renal disease and repair. She is internationally recognised both for her work on the systems biology of kidney development and also for her pioneering studies into potential regenerative therapies in the kidney. This work has encompassed the characterisation of adult stem cells in the kidney as well as analyses of the embryonic progenitor population. Her work on the developing kidney has driven studies into the recreation of nephron stem cell populations via transcriptional reprogramming and directed differentiation of pluripotent stem cells. As a result, her research now focuses on the generation of mini-kidneys from patient stem cells for use in drug screening and disease modelling. Professor Little’s work has been recognised by many awards, including a Royal Society Endeavour Fellowship at the Medical Research Council Human Genetics Unit, Edinburgh, Scotland. She has also received the GlaxoSmithKline Award for Research Excellence (2005), the Australian Academy of Sciences Gottschalk Medal in Medical Sciences (2004), an Eisenhower Fellowship (2006) and a Boorhaave Professorship, Leiden University (2015). A graduate of the Australian Institute of Company Directors, she founded Nephrogenix Pty Ltd and was on the board of this company. From 2007-2008, she served as the Chief Scientific Officer at the Australian Stem Cell Centre. She is currently the Vice President of the Australasian Society for Stem Cell Research and a member of Stem Cells Australia. Melissa is on the editorial board of the Journal of the American Society for Nephrology, Development, Kidney International and Developmental Biology.
MONDAY 28 SEPTEMBER 2015

16:00 – 17:30

SYMPOSIUM 7

STRUCTURAL INSIGHTS INTO CANCER BIOLOGY

Chairs: Dr Andrew Brooks, University of Queensland Diamantina Institute, QLD
        Professor Michael Parker, St Vincent’s Institute of Medical Research, VIC

Location: Room 219

16:00  SYM-07-01  ANZSCDB Emerging Leader Award Lecture
Molecular insights into the organization of the caveolar membrane coat
Collins, B.M., Kovtun, O., Tillu, V. and Parton, R. (Australia)

16:20  SYM-07-02
Assembly of an oncogenic transcription factor complex
Matthews, J.M. (Australia)

16:40  SYM-07-03
A molecular switch mechanism triggers the dead kinase, MLKL, to mediate cell death
Murphy, J.M. (Australia)

17:00  SYM-07-04
Correlative three dimensional super-resolution imaging of immunological synapses
Chen, Y., Ludford-Menting, M., Min, G. and Russell, S. (Australia)

17:15  SYM-07-05
Regulation of ubiquitin transfer: A role for elements external to the ring domain
Wright, J.D. and Day, C.L. (New Zealand)
16:00 – 17:30

SYMPOSIUM 8

DISSECTING METABOLIC AND VASCULAR DYSFUNCTION

Chairs: Dr Dominic Ng, University of Queensland, QLD
Dr Karlheinz Peter, Baker IDI Heart & Diabetes Inst, VIC

Location: Plenary Hall 3

16:00 SYM-08-01
Selective autophagy and lipid metabolism: A two sided coin
Cuervo, A.M. (USA)

16:20 SYM-08-02
Live-imaging of intramolecular tension through VE-cadherin uncovers the mechanical basis of pathogenesis in a cellular model of cavernous malformation

16:40 SYM-08-03
Photo-depolarised mitochondria trigger recovery through undergoing mitochondrial fusion
Padman, B. and Ramm, G. (Australia)

17:00 SYM-08-04
Molecular ultrasound imaging using platelet-targeted microbubbles; testing and monitoring of targeted thrombolytic therapy
Wang, X. and Peter, K. (Australia)

17:15 SYM-08-05
Distinct developmental cell death of Drosophila melanogaster larval midgut involving autophagy
Xu, T., Nicolson, S., Denton, D. and Kumar, S. (Australia)
16:00 – 17:30

SYMPOSIUM 9

ADAPTATION TO CLIMATE CHANGE

Chairs: Dr Kay Hodgins, Monash University, VIC
Dr Alex Fournier-Level, University of Melbourne, VIC

Location: Room 218

16:00 SYM-09-01
Cross-study comparison reveals common genomic, network and functional signatures of desiccation resistance in *Drosophila melanogaster*

_Telonis-Scott, M._, Sgro, C.M., Hoffmann, A.A. and Griffin, P.C. (Australia)

16:20 SYM-09-02
Landscape genomics for climate adaptation: models, foundation species and crops

_Borevitz, J._ (Australia)

16:40 SYM-09-03
Coral adaptation to climate change: A non-traditional model perspective

_Bay, L.K._ and Matz, M.V. (Australia and USA)

17:00 SYM-09-04
Variation in the sensitivity of mesophyll conductance to CO$_2$ concentration in diverse gymnosperm species

_Harwood, R._, Franks, P.J. and Barbour, M.M. (Australia)

17:15 SYM-09-05
A plant virus and future elevated atmospheric CO$_2$ alter the antioxidant defence capacity of wheat

_Vandegeer, R.K._, Powell, K.S. and Tausz, M. (Australia)
MONDAY 28 SEPTEMBER 2015

16:00 – 17:30

SYMPOSIUM 10

REGENERATIVE AND DEVELOPMENTAL BIOLOGY
MODEL SYSTEMS

Chairs: A/Prof Ruth Arkell, Australian National University, ACT
Dr James Godwin, ARMI, Monash University, VIC

Location: Room 217

16:00 SYM-10-01
Sponges as models to study evolution of animal development and regeneration mechanisms
Adamska, M.A. (Norway and Australia)

16:20 SYM-10-02
Diverse mechanisms contribute to regeneration of the zebrafish pancreas
Hesselson, D. (Australia)

16:40 SYM-10-03
The African clawed frog *Xenopus laevis* as a model organism for limb regeneration and development

17:00 SYM-10-04
Tmem2 regulates angiogenic Vegf-signaling by controlling hyaluronic acid turnover

17:15 SYM-10-05
Developing lysyl oxidase (LOX) inhibitors as anti-fibrotic drugs to ameliorate skin fibrotic disorders and scarring
16:00 – 17:30

SYMPOSIUM 11

PLANT SYSTEMS BIOLOGY

Chairs: Professor Rudi Appels, Murdoch University, WA
       Professor Graeme Hammer, University of Queensland, QLD

Location: Room 220

16:00 SYM-11-01
An integrated systems approach to dissecting adaptive trait architecture in field crops
Mace, E.S., Jordan, D.R. and Hammer, G.L. (Australia)

16:20 SYM-11-02
Integrated transcriptomics and metabolomics analysis for system-level studies in barley

16:40 SYM-11-03
Wheat genomics in agriculture: integrating the contributions from gene networks
Appels, R. (Australia)

17:00 SYM-11-04
Maize maintains growth and yield at decreased nitrate supply through a highly dynamic and developmental stage-specific response

17:15 SYM-11-05
Specification of the male germ line in flowering plants
Peters, B.A. and Brownfield, L.R. (New Zealand)
MONDAY 28 SEPTEMBER 2015

16:00 – 17:30

SYMPOSIUM 12

PLANT-METAL INTERACTIONS

Chairs: Dr Denise Fernando, La Trobe University, VIC
Dr Alex Johnson, University of Melbourne, VIC

Location: Room 216

16:00 SYM-12-01
Implementing aluminium tolerance genes for improved crop productivity on acid soils
Delhaize, E. and Ryan, P.R. (Australia)

16:20 SYM-12-02
De novo transcriptome analysis of *Senecio coronatus* identifies putative transport proteins underpinning the nickel hyperaccumulation trait

16:40 SYM-12-03
Iron transport in soybean nodules
Brear, E.M., Qu, Y., Loughlin, P.C., Gavrin, A., Day, D.A. and Smith, P.M.C. (Australia)

17:00 SYM-12-04
Novel insights into phytosiderophore-mediated acquisition of iron by rice
Selby-Pham, J., Lutz, A., Boughton, B.A., Roessner, U. and Johnson, A.A.T. (Australia)

17:15 SYM-12-05
Crystal structure of GUN4 protein and analysis of its role in singlet oxygen production

17:30 – 19:00 WELCOME MIXER / EXHIBITION / POSTERS

Location: Exhibition Hall
PLENARY LECTURE

Chair: Dr Jan Kaslin, Monash University, VIC
Location: Plenary Hall 3

PLE-TUE-06
Mechanisms of *C. elegans* neuroblast development

**Ou, G.** (China)

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**A/Prof Guangshuo Ou**

Guangshuo Ou is Associate Professor in the School of Life Sciences at Tsinghua University, China. After receiving his PhD in 2006 from the University of California, Davis, in the laboratory of Jon Scholey, he worked as a Damon Runyon postdoctoral fellow with Ron Vale at UCSF/HHMI. Recruited by the junior One-Thousand Talent program, he was appointed as an investigator at the Institute of Biophysics, Chinese Academy of Science in 2011 before moving to Tsinghua University and joining the Tsinghua-Peking Joint Center for Life Sciences in 2013. Guangshuo developed fluorescence live cell imaging approaches to study *C. elegans* larval development and developed somatic TALEN and somatic CRISPR-Cas9 techniques to generate conditional mutations in *C. elegans*. Guangshuo’s research interests focus on the mechanism of *C. elegans* neuroblast development.
PLENARY 7

PLENARY LECTURE

Chair: Professor Steve Smith, University of Tasmania, TAS
Location: Room 220

PLE-TUE-07
Towards a molecular understanding of inflorescence structure determination

Kyozuka, J., Tokunaga, H., Yoshida, A. and Yamazaki, R.
(Japan)

Professor Junko Kyozuka

Junko Kyozuka is a Professor in the Graduate School of Life Sciences at Tohoku University. She was awarded her PhD from the University of Tokyo in 1988. She then worked as a researcher at the Plantech Research Institute owned by the Mitsubishi Chemical Corporation. Then she worked as a postdoctoral fellow at CSIRO, Plant Industry in Canberra, Australia. She was appointed Associate Professor at the Nara Institute of Science and Technology in 1995. Since then, Junko’s main research interests centre on the genetic mechanisms of flower and inflorescence development. In 2001, she moved to the University of Tokyo and then moved to her present position at Tohoku University in 2015, where her study of plant development continues. Her current research topics include establishment of plant architecture through the control of developmental phase transition.
Regulation of phosphoinositide signaling by inositol polyphosphate phosphatases

Mitchell, C.A., Dyson, J., Davies, M., Gurung, R., Eramo, M., Conduit, S. and Ooms, L. (Australia)

Professor Christina Mitchell

Professor Christina Mitchell is the Dean of Medicine, Nursing and Health Sciences and Academic Vice-President at Monash University. Christina trained as a physician scientist specialising in clinical haematology. She obtained a PhD from Monash University before undertaking her postdoctoral studies with Professor Philip Majerus at Washington University Medical School, St Louis, USA. There, Christina purified the first human inositol polyphosphate 5-phosphatase, INPP5B, and contributed to the cloning of the enzyme. Returning to Australia to Box Hill Hospital, she became an independent investigator and was instrumental in characterising the key catalytic activity and substrate specificity of this important family of enzymes. More recently, her laboratory discovered that one of the 4-phosphatase family members, INPP4B, functions as a tumour suppressor in breast cancer and may represent a breast cancer prognostic marker. With collaborators, her laboratory has also contributed to the identification of mutations in the LIM adaptor protein FHL1 that cause reducing body myopathy.
PLENARY 9

ASPS PETER GOLDACRE AWARD LECTURE
(Including Presentation of Award)

Chair: Professor John Evans, Australian National University, ACT
ASPS President

Location: Room 220

PLE-TUE-09
Karrikin signalling in plants - clues from a smoking gun
Waters, M.T. (Australia)

Dr Mark Waters

Originating from the UK, Dr Mark Waters joined the University of Western Australia in 2010 to work on the genetics of karrikin responses in Arabidopsis. Derived from burnt plant matter, karrikins are seed germination stimulants that resemble strigolactone hormones. Dr Waters’ research has elucidated early events in karrikin and strigolactone signalling, specifically involving the karrikin receptor protein KAI2. His work has established that KAI2 regulates diverse aspects of the plant life cycle, and may be a receptor for an unknown plant hormone. Evolutionary conservation of KAI2 suggests that KAI2-dependent signalling is a fundamental and ancient process common to all plants.
TUESDAY 29 SEPTEMBER 2015

10:05 – 10:09

**ASBMB LABGEAR AUSTRALIA DISCOVERY SCIENCE AWARD PRESENTATION**

To: Professor Paul Gleeson, University of Melbourne, VIC
Chair: Professor Michael Ryan, Monash University, VIC
ASBMB President
Location: Plenary Hall 3

10:09 – 10:13

**EPPENDORF EDMAN AWARD PRESENTATION & BIOPLATFORMS AUSTRALIA AWARD PRESENTATION**

To: Dr Benjamin Schultz, University of Queensland, QLD
Chair: Professor Michael Ryan, Monash University, VIC
ASBMB President
Location: Plenary Hall 3

10:13 – 10:17

**BECKMAN COULTER EDUCATION AWARD**

To: Dr Peter Arthur, University of Western Australia, WA
Chair: Professor Michael Ryan, Monash University, VIC
ASBMB President
Location: Plenary Hall 3

10:17 – 10:20

**ASBMB BOOMERANG AWARD**

To: Dr Mitchell O’Connell, University of California – Berkeley, USA
Chair: Professor Michael Ryan, Monash University, VIC
ASBMB President
Location: Plenary Hall 3

10:20 – 11:00  **MORNING TEA / EXHIBITION / POSTERS**
Location: Exhibition Hall
11:00 – 12:30

SYMPOSIUM 13

OMICS OF HOST-MICROBE INTERACTIONS

Chairs: Professor Malcolm McConville, University of Melbourne, VIC
Dr Joanne Macdonald, University of the Sunshine Coast, QLD

Location: Room 219

11:00 SYM-13-01
Glycan array analysis as a high throughput approach to the discovery of novel pathogen - host interactions
Jennings, M.P. (Australia)

11:20 SYM-13-02
Novel post-translational modifications in the ER of malaria parasites are essential for transmission to mosquitoes

11:40 SYM-13-03
Exploiting the water-soluble vitamin requirements of the intraerythrocytic stage of the malaria parasite
Saliba, K.J. (Australia)

12:00 SYM-13-04
Chemical probing of mycobacterial carbonic anhydrases suggests redox-regulation and provides an avenue for non-classical inhibitors
Temporal analysis of calcium mediated signalling events in toxoplasma reveals complex interrelationships between key molecules

Stewart, R.J., Whitehead, L., Rogers, K. and Tonkin, C.J. (Australia)
TUESDAY 29 SEPTEMBER 2015

11:00 – 12:30

SYMPOSIUM 14

STRUCTURAL BIOLOGY IN METABOLIC AND CARDIOVASCULAR DISEASE

Chairs: Professor Bruce Kemp, St Vincent’s Institute, VIC
Dr Ruby Law, Monash University, VIC

Location: Room 220

11:00 SYM-14-01
Insulin's interaction with its receptor: The science of structural minimalism
Menting, J.G., Margetts, M.B. and Lawrence, M.C. (Australia)

11:20 SYM-14-02
Cyclotides as drug design scaffolds for metabolic and cardiovascular disease
Craik, D.J. (Australia)

11:40 SYM-14-03
Discovery of a class of novel bioactive lipid

12:00 SYM-14-04
Shear stress sensitises mechanosensitive TRP channels to their selective agonists

12:15 SYM-14-05
An open and shut case: probing the effect of Munc18c binding and membrane tethering on syntaxin-4 interactions
11:00 – 12:30

SYMPOSIUM 15

IMAGING IN NEUROLOGICAL SYSTEMS

Chairs: Professor Michael Kassiou, University of Sydney, NSW
Dr Andrew Watt, Florey Institute of Neuroscience & Mental Health, VIC

Location: Room 217

11:00 SYM-15-01
In vivo evaluation of the pathology of Alzheimer’s disease: Aβ and tau imaging
Villemagne, V.L. (Australia)

11:20 SYM-15-02
Investigating microglial activation and inflammation in schizophrenia: a PET imaging study

11:40 SYM-15-03
Imaging in neurological systems
Grieve, S.M. (Australia)

12:00 SYM-15-04
Exploring the signalling mechanism of glutamate excitotoxicity in cultured primary cortical neurons
Hoque, A., Ang, C.S., Williamson, N., Ng, D.C. and Cheng, H.C.

12:15 SYM-15-05
How do neuroblastoma cells behave in 3D embryonic tissues?
Ighaniyan, S. (Australia)
11:00 – 12:30

SYMPOSIUM 16

HOT TOPICS IN GLOBAL CHANGE BIOLOGY

Chairs: Dr Josh Mylne, University of Western Australia, WA
Dr Tony Gendall, La Trobe University, VIC

Location: Room 218

11:00 SYM-16-01
Adaptation to climate change
Sgro, C. (Australia)

11:20 SYM-16-02
Genomic basis of local adaptation to climate in lodgepole pine and interior spruce
Hodgins, K.A., Yeaman, S., Nurkowski, K., Lotterhos, K., Holliday, J., Rieseberg, L. and Aitken, S. (Australia, Canada and USA)

11:40 SYM-16-03
Carbon dioxide enrichment enhances iron relocation to leaves and decreases iron uptake at grain filling in bread wheat
Weisser, M.V., Tausz, M., Roessner, U. and Johnson, A.A.T. (Australia)

12:00 SYM-16-04
Short-term and long-term thermal photosynthetic responses in grasses

12:15 SYM-16-05
Bulked segregant - genotyping-by-sequencing: Cost-effective and background independent genetic mapping of mutans and QTL
Wimalanathan, K., Weeks, R.L. and Vollbrecht, E. (USA)
TUESDAY 29 SEPTEMBER 2015

11:00 – 12:30

SYMPOSIUM 17

TRANSLATIONAL PHOTOSYNTHESIS

Chairs: Professor Bob Furbank, Australian National University, ACT
Dr Martha Ludwig, University of Western Australia, WA

Location: Room 216

11:00 SYM-17-01
Innovations in C4 Evolution - The Bundle-Sheath
Westhoff, P., Doering, F., Schulze, S., Emmerling, J., Kirschner, S., Billakurthi, K. and Gowik, U. (Germany)

11:20 SYM-17-02
Hijacking bicarbonate transporters for potential improvement of C3 photosynthesis and crop yield

11:40 SYM-17-03
Genotypic differences in environmental effects on photosynthetic isotope discrimination and mesophyll conductance in barley
Song, X.S. and Barbour, M.M. (Australia)

12:00 SYM-17-04
Screening variation in wheat photosynthesis using hyperspectral leaf reflectance

12:15 SYM-17-05
Investigating the unrealized photosynthetic capacity of wheat tillering inhibition mutants
11:00 – 12:30
SYMPOSIUM 18
EMERGING TECHNOLOGIES IN THE BIOLOGICAL SCIENCES

Chairs: A/Prof Gary Hime, University of Melbourne, VIC
A/Prof Briony Forbes, Flinders University, SA

Location: Plenary Hall 3

11:00 SYM-18-01 LabGear Australia Discovery Science Award Lecture
The Golgi apparatus: From membrane trafficking to cell sensing
Gleeson, P.A. (Australia)

11:20 SYM-18-02 ASBMB Boomerang Award Lecture
Programmable RNA targeting and cleavage by CRISPR/Cas9
O'Connell, M.R., East-Seletsky, A., Oakes, B.L., Sternberg, S.H. and Doudna, J.A. (USA)

11:40 SYM-18-03 Eppendorf Edman Award Lecture
Stability and evolvability of sugars on proteins
Tan, N.Y., Jamaluddin, F.M., Bailey, U.M., Mahmud, S.H. and Schulz, B.L. (Australia)

12:00 SYM-18-04
Novel antibacterial agents are potent inhibitors of biotin protein ligase

12:15 SYM-18-05
Effect of DNA methyltransferases on the reprogramming of methylation during early mouse embryo development
Li, Y. and O'Neill, C. (Australia)

12:30 – 13:30  LUNCH / EXHIBITION / POSTERS
Location: Exhibition Hall

12:30 – 13:30  STUDENT LUNCH WITH OVERSEAS SPEAKERS
Plenary Hall 3 Foyer
12:45 – 14:15

SYMPOSIUM 19

EDUCATION I: CHALLENGES IN RESEARCH TRAINING

Chairs: Dr Gonzalo M. Estavillo, CSIRO, ACT
A/Prof Terry Piva, RMIT University, VIC

Location: Room 218

12:45 SYM-19-01
Mapping skills training onto target competencies for PhD research and beyond
Stone, M.J. (Australia)

13:05 SYM-19-02
Transferable skills, employability and PhD education
McEwan, A.G. and Riek, S. (Australia)

13:25 SYM-19-03
Reconceptualising and evaluating the academic role in the biosciences
Ross, P.M., Coates, H. and Poronnik, P. (Australia)

13:45 SYM-19-04
Training scientists for communication with the public
Phillips, G. (Australia)

14:05 Discussion time

13:30 – 14:30 POSTER SESSION B

Location: Exhibition Hall
14:30 – 16:00

COLLOQUIUM 1

SYSTEMS, COMPUTATIONAL AND CHEMICAL BIOLOGY

 Chairs: Professor Irene Yarovsky, RMIT University, VIC
A/Prof Suresh Mathivanan, La Trobe Institute for Molecular Sciences, VIC

Location: Room 218

14:30 COL-01-01
A disturbance in the force: Bak dimers randomly aggregate to rupture the mitochondrial outer membrane during apoptosis


14:45 COL-01-02
The membrane activity of an amyloid forming, antimicrobial frog peptide

_Martin, L.L.,_ Piantivigna, S., Tikkoo, T., Gray, N.P. and Maximer, H.L. (Australia)

15:00 COL-01-03
Cyclic peptide toxins of plant origin for targeted protection against various attackers


15:15 COL-01-04
The role of ascorbate and the metastasis suppressor N-myc downstream regulated gene 1 (NDRG1) in stress induced autophagy in neoplastic cells

_Bae, D.,_ Lane, C. and Richardson, D. (Australia)

15:30 COL-01-05
Elucidating the molecular mechanism of apoptotic cell disassembly for drug targeting

BAALC - a new target for the treatment of acute leukaemias
Chi, M., Pearsall, E., Yoon, E.-J., Enjeti, A., Verrills, N.M. and Skelding, K.A. (Australia)
TUESDAY 29 SEPTEMBER 2015

14:30 – 16:00

COLLOQUIUM 2

MOLECULAR AND CELLULAR IMAGING

Chairs: A/Prof Ian Harper, Monash University, VIC
       Professor Sarah Russell, Peter MacCallum Cancer Centre, VIC

Location: Plenary Hall 3

14:30 COL-02-01
Tropomyosin promotes lamellipodial persistence by facilitating the transition from protrusive to adhesive actin networks

14:45 COL-02-02
A mitotic kinesin CENP-E is essential to regulate Aurora B kinase function
Taveras, C. and Mao, Y. (USA)

15:00 COL-02-03
A novel mechanism of generating extracellular vesicles during apoptosis via a beads-on-a-string membrane structure

15:15 COL-02-04
A new model for pore formation by cholesterol-dependent cytolysins
Reboul, C.F., Whisstock, J.C. and Dunstone, M.A. (Australia)

15:30 COL-02-05
Stress regulation of IMP13-mediated nucleocytoplasmic transport; role in apoptosis?
Impact of respiratory syncytial virus infection on host cell mitochondrial morphology and function

TUESDAY 29 SEPTEMBER 2015

14:30 – 16:00

COLLOQUIUM 3

OMICS AND ENABLING TECHNOLOGIES IN THE BIOLOGICAL SCIENCES

Chairs: Dr Andrew Webb, Walter & Eliza Hall Institute, VIC
       Dr Gisela Mir Arnau, Peter MacCallum Cancer Centre, VIC

Location: Room 216

14:30 COL-03-01
Lipid imaging in prostate cancer

14:45 COL-03-02
How did the red blood cell lose its nucleus?

15:00 COL-03-03
A microfluidic system for coordinated rotation and vibration of cells

15:15 COL-03-04
Transcriptome sequencing meets structural biology to reveal a novel potential bioluminescent research tool

15:30 COL-03-05
Novel biochemical basis for nitric oxide preservation by pharmacological agents
Maiocchi, S., Rees, M. and Thomas, S. (Australia)
Exploring the epitranscriptome: m22G and intellectual disability

Schonrock, N. Liu, G., Vauti, F., Franco, G. and Mattick, J.S. (Australia and Brazil)
COLLOQUIUM 4

PROTEINS AND ADVANCED STRUCTURAL APPROACHES

Chairs: Dr Marc Kvansakul, La Trobe University, VIC
        Dr Erinna Lee, Walter & Eliza Hall Institute, VIC

Location: Room 219

14:30 COL-04-01 Adelaide Protein Group Lecture
Determining the oncogenic role of sphingosine kinase 2
Neubauer, H.A., Zebol, J.R., Pham, D.H., Moretti, P.A.B.,
Gliddon, B.L., Powell, J.A. and Pitson, S.M. (Australia)

14:45 COL-04-02
Challenging problems in single-particle cryo-electron microscopy
Elmlund, D. and Elmlund, H. (Australia)

15:00 COL-04-03 Queensland Protein Group Lecture
Characterisation of a bleach-activated human chaperone protein
Wyatt, A.R., Kumita, J.R., Mifsud, R.W., Gooden, C.A.,
Wilson, M.R. and Dobson, C.M. (Australia and United Kingdom)

15:15 COL-04-04 Sydney Protein Group Lecture
Structural and functional insights into the evolution and stress adaptation of type II chaperonins
Stewart, A.G., Chaston, J.J., Smits, C., Aragão, D., Ahsan, B.,
Sandin, S., Molugu, S.K., Bernal, R.A. and Stock, D.
(Australia, Singapore and USA)

15:30 COL-04-05
The molecular basis of interleukin-3 receptor signalling
(Australia)
Human beta-defensin 3 contains a conserved oncolytic motif that binds PI(4,5)P2 to mediate tumour cell killing

14:30 – 16:00

COLLOQUIUM 5

DEVELOPMENTAL, STEM CELL AND REGENERATIVE BIOLOGY

Chairs: A/Prof Natasha Harvey, University of South Australia, SA
Dr Ben Hogan, University of Queensland, QLD

Location: Room 217

14:30  COL-05-01
Characterising the Dent's disease homologue in Drosophila
Judd-Mole, S. and Burke, R.E. (Australia)

14:45  COL-05-02
Bidirectional transport of the E2 ubiquitin conjugating-like enzyme Ubc9
Davies, R.G., Wagstaff, K.M., Lieu, K.G. and Jans, D.A. (Australia)

15:00  COL-05-03
Cracking the (ultra)structural biology of Scribble to understand its role as a cell polarity regulator and tumour suppressor protein

15:15  COL-05-04
Expression and functional investigation of a novel retinal dystrophy disease gene discovered using next-generation sequencing
Sabri, A., Cheng, A., Greenlees, R., Prokudin, I. and Jamieson, R. (Australia)

15:30  COL-05-05
Integrating novel targets of miR-196 within the genetic networks controlling axial elongation and vertebral patterning
Bildsoe, H., Wong, S.F.L. and McGlinn, E. (Australia)
Rab proteins and the Golgi apparatus

14:30 – 16:00

COLLOQUIUM 6

PLANT BIOLOGY

Chairs: A/Prof Joshua Heazlewood, University of Melbourne, VIC
Dr Rachael Nolan, University of Technology, Sydney, NSW

Location: Room 220

14:30 COL-06-01
Post-translational modifications of CSLF6 proteins, the catalytic subunits of the grass (1,3; 1,4)-β-D-glucan synthase
Ho, Y.Y., Ford, K., Lampugnani, E.R., Oehme, D., Bacic, A. and Doblin, M.S. (Australia)

14:45 COL-06-02
Ca$^{2+}$-mediated remodelling of actin networks directs vesicle trafficking during wall ingrowth papillae construction in transfer cells
Zhang, H.M., Patrick, J.W. and Offler, C.E. (Australia)

15:00 COL-06-03
Leaf hydraulic conductance and mesophyll conductance respond independently to changes in VPd, light and CO$_2$ concentration in cotton
Loucos, K.E., Simonin, K.A. and Barbour, M.M. (Australia and USA)

15:15 COL-06-04
Vacuolar invertase plays essential roles in reproductive development through regulating floral organ structure and male and female fertilities in cotton
Wang, L. and Ruan, Y.L. (Australia)

15:30 COL-06-05
The rice immune receptor XA21 recognizes a tyrosine-sulfated protein from a gram-negative bacterium
Schwessinger, B., Pruitt, R.N., Joe, A., Thomas, N., Liu, F., Albert, M., Robinson, M., Chan, L., Heazlewood, J.L. and Ronald, P.C. (USA, Australia and Germany)
A functional circadian clock is required for optimal herbivore defence in a Solanaceous plant system

Dalton, H.L., Blomstedt, C.K., Hamill, J.D., Neale, A.D., Gleadow, R.M., Baldwin, I.T. and Gaquerel, E. (Australia and Germany)
16:30 – 18:00

**COLLOQUIUM 7**

**EDUCATION II: INNOVATIONS IN UNDERGRADUATE EDUCATION**

**Chairs:** Dr Heather Verkade, University of Melbourne, VIC
Dr Janet Macaulay, Monash University, VIC

**Location:** Room 218

16:30 **COL-07-01 Beckman Coulter Education Award Lecture**
Improving student learning by using marks to develop teaching methods and content
*Arthur, P.G.*, Attwood, P.V. and Ludwig, M. (Australia)

16:50 **COL-07-02**
Gain or pain: harnessing digital tools to improve undergraduate teaching
*Gleadow, R.M.* (Australia)

17:05 **COL-07-03**
Flipping the laboratory - the value of pre-practical activities for agricultural and viticultural science students
*Loveys, B.R.* and Riggs, K.M. (Australia)

17:20 **COL-07-04**
Feedback-informed and problem-based learning to prepare students for the real world: challenges and successes
*Schaeffer, P.M.* (Australia)

17:35 **COL-07-05**
Struggle and failure in undergraduate researchers - how authentic is the URE?
*Rowland, S.L.*, Tan, C. and Pedwell, R. (Australia)

17:50 **Discussion time**
16:30 – 18:00

**SYMPOSIUM 20**

**CANCER DRUG DISCOVERY**

**Chairs:** A/Prof John Pimanda, University of New South Wales, NSW
Dr Lenka Munoz, University of Sydney, NSW

**Location:** Room 219

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**16:30 SYM-20-01**
Acute myeloid leukemia requires Hhex-mediated repression of *Cdkn2a*

**16:50 SYM-20-02**
Nanotechnology meets therapeutics for refractory cancer
Kavallaris, M. (Australia)

**17:10 SYM-20-03**
Eph receptors as therapeutic targets in brain cancer
Carrington, B., Lim, Y., Ensbey, K., Bruce, Z., Stringer, B.W., Boyd, A.W. and Day, B.W. (Australia)

**17:30 SYM-20-04**
Developing potent and specific inhibitors of the Grb7 breast cancer target using phosphotyrosine mimetics and bicyclic peptides

**17:45 SYM-20-05**
Direct apoptosis inducers: better and safer anti-cancer drugs?
Shekhar, T.M., Miles, M.A., Green, M.M., Hall, N. and Hawkins, C.J. (Australia)
SYMPOSIUM 21

SYSTEMS BIOLOGY APPROACHES TO METABOLIC AND CARDIOVASCULAR DISEASE

Chairs: Dr Melissa Davis, University of Queensland, QLD
        Professor Hugh Barrett, University of Western Australia, WA

Location: Room 216

16:30 SYM-21-01
A functional genomics approach to predict novel genetic determinants for heart development and disease
Eichenlaub, M., Fossat, M., Hallab, J., Chiu, H.M.H., Dang, L., Tam, P. and Ramialison, M. (Australia)

16:50 SYM-21-02
Decoding the genetic causes of congenital heart disease using systems biology
Ho, J.W.K. (Australia)

17:10 SYM-21-03
Genomic prediction of coronary heart disease
Inouye, M. (Australia)

17:30 SYM-21-04
Joint application of interactome capture and RBDmap: The cardiomyocyte mRNA-interactome reveals multiple links to intermediary metabolism and cardiac disease
(Australia and Germany)

17:45 SYM-21-05
Extracellular matrix, sprouting angiogenesis and biomechanical feedback in a new model for heart chamber development
Del Monte Nieto, G. and Harvey, R.P. (Australia)
16:30 – 18:00

SYMPOSIUM 22

BRAIN FUNCTIONAL GENOMICS

Chairs: Dr Gursharan Chana, University of Melbourne, VIC
Dr Irina Voineagu, University of New South Wales, NSW

Location: Room 217

16:30 SYM-22-01
Next generation sequencing subventricular zone in schizophrenia patients reveals immune activation and altered neurogenesis
Shannon Weickert, C., Barry, G. and Fung, S.J. (Australia)

16:50 SYM-22-02
Mechanisms underpinning the rapid functional evolution of the human brain

17:10 SYM-22-03
Evolutionary conservation of mCH patterning in the vertebrate brain
Bogdanovic, O., de Mendoza, A., de la Calle Mustienes, E., Daish, T., Grutzner, F., Venkatesh, B., Gomez-Skarmeta, J.L. and Lister, R. (Australia and Singapore)

17:30 SYM-22-04
Transient astrocytic barrier cells coordinate the integration of the peripheral and central nervous system during development of the olfactory system
Amaya, D., Tello Velasquez, J., Chehrehasa, F., Ekberg, J.A.K. and St John, J.A. (Australia)

17:45 SYM-22-05
Hypoxia regulated microRNA-210 in neuronal plasticity
Watts, M.E., Williams, S.M. and Claudianos, C. (Australia)
16:30 – 18:00

SYMPOSIUM 23

IMAGING IN REGENERATIVE AND DEVELOPMENTAL BIOLOGY

Chairs: Dr Kelly Smith, University of Queensland, QLD
        A/Prof Julian Heng, Harry Perkins Institute of Medical Research, WA

Location: Plenary Hall 3

16:30 SYM-23-01
The zebrafish: imaging a genetic system
Jesuthasan, S.J. (Singapore)

16:50 SYM-23-02
Using the mammary epithelial heirarchy to decipher breast cancer
Fu, N., Nolan, E., Vaillant, F., Lindeman, G. and Visvader, J. (Australia)

17:10 SYM-23-03
Axonal fusion: An alternative mechanism to repair injured axons
Neumann, B., Coakley, S., Giordano-Santini, R., Linton, C., Lee, E.S., Nakagawa, A., Xue, D. and Hilliard, M.A. (Australia and USA)

17:30 SYM-23-04
Pro-survival protein MCL1 is essential for endothelial cell survival during angiogenesis
Watson, E.C., Whitehead, L., Dewson, G. and Coultas, L. (Australia)

17:45 SYM-23-05
YAP activates beta-catenin in murine epidermal stem/progenitor cell proliferation
Akladios, B., Mendoza, V., Eeles, J., Lambie, D., Hardeman, E., Soyer, H.P., Key, B., Khosrotehrani, K. and Beverdam, A. (Australia)
16:30 – 18:00

SYMPOSIUM 24

PLANT CELL WALLS

Chairs: Professor Staffan Persson, University of Melbourne, VIC
Professor Vincent Bulone, University of Adelaide, SA
Location: Room 220

16:30 SYM-24-01
Reconstitution of cell wall in plant without secondary cell wall
Sakamoto, S. and Mitsuda, N. (Japan)

16:50 SYM-24-02
Understanding on secondary wall biosynthesis in rice
Zhou, Y. (China)

17:10 SYM-24-03
The cell wall of cotton seed fibre plays a critical role in defining
cotton fibre quality
Pettolino, F., MacMillan, C., Birke, H., Liu, Q., Yulia, D. and
Llewellyn, D. (Australia)

17:30 SYM-24-04
The regulation of growth and cell wall deposition by defective
KERNEL1 (DEK1) protein in Arabidopsis thaliana
Johnson, K.L., Amanda, D., Guo, T., Galletti, R., Watt, A.M.,
Doblin, M.S., Ingram, G.C. and Bacic, A. (Australia and
France)

17:45 SYM-24-05
The fasciclin-like arabinogalactan, FLA2, localizes to
plasmodesmata and forms filaments at the outer surface of
epidermal cells
Smith, P.M.C. and Overall, R.L. (Australia)

18:00 – 19:30
COCKTAIL PARTY / EXHIBITION / POSTERS
Location: Exhibition Hall
Professor Minoru Yoshida

Minoru Yoshida received his PhD in 1986 from the University of Tokyo under the guidance of Professor Teruhiko Beppu, where he began mode-of-action studies on trichostatin A (TSA) and leptomycin B (LMB). He identified histone deacetylase and Crm1 exportin 1 as the specific targets of TSA and LMB, respectively, which greatly contributed to the field of epigenetics and nuclear transport. After he was promoted to Associate Professor in 1995 in the Department of Biotechnology at the University of Tokyo, he moved to RIKEN and started the Chemical Genetics Laboratory as Chief Scientist in 2002. In 2008, he was also appointed as Group Director, Chemical Genomics Research Group. Currently, he has joint appointments in the Department of Biotechnology at the University of Tokyo and Graduate School of Science and Engineering at Saitama University. At RIKEN, he identified small molecules with unique targets, including spliceostatin, an inhibitor of pre-mRNA splicing, and theonellamide, which binds sterols to cause phase separation of lipid membranes. He has received many awards, including the Sumiki-Umezawa Memorial Award (1998), a Commendation for Science and Technology by the Minister of by the Minister of Education, Culture, Sports, Science and Technology, Japan (2010), the Japan Society for Bioscience, Biotechnology, and Agrochemistry.
PLENARY LECTURE

Chair: Professor Tony Bacic, University of Melbourne, VIC
Location: Room 220

PLE-WED-11
Molecular genetic mechanisms underlying rice plant architecture
Li, J. (China)

Professor Jiayang Li

Jiayang Li is a Professor in the Institute of Genetics and Developmental Biology, Chinese Academy of Sciences. He is also President of the Chinese Academy of Agricultural Sciences and the Chinese Vice Minister of Agriculture. After receiving his PhD in 1991 from Brandeis University, working with Dr Jerome Schiff, he worked as a postdoctoral fellow in Robert Last’s lab at the Boyce Thompson Institute at Cornell University. In 1994, Dr Li returned to China as a Professor of plant molecular genetics in the Institute of Genetics, Chinese Academy of Sciences. Dr Li’s main research interests centre on the molecular genetics of plant development and metabolism, with a particular focus on elucidating the molecular mechanisms underlying plant architecture and starch biosynthesis in rice. He is also interested in breeding super elite rice varieties by molecular design.
PLENARY 12

MERCK MILLIPORE RESEARCH MEDAL LECTURE
(Including Presentation of Award)

Chair: Professor Michael Ryan, Monash University, VIC
ASBMB President

Location: Plenary Hall 3

PLE-WED-12
Apoptotic caspases: More than just killers
Kile, B.T. (Australia)

Professor Benjamin Kile

Professor Benjamin Kile is an NHMRC Principal Research Fellow and Joint Head of the ACRF Chemical Biology Division at the Walter and Eliza Hall Institute of Medical Research (WEHI). After completing a BSc (Hons) at the Murdoch Children’s Research Institute in 1997, he undertook PhD studies in the Cancer and Hematology Division at WEHI, graduating in 2001. Ben then pursued postdoctoral studies with Professor Monica Justice at Baylor College of Medicine, USA. He returned to WEHI in 2004 and became an independent Laboratory Head in 2008. The Kile lab is focused on the molecular regulation of blood cell formation and function, with a particular interest in the role of programmed cell death pathways. His lab has identified apoptotic mechanisms that regulate megakaryocyte and blood platelet survival, which has assisted the development of a new class of anti-cancer drugs called the BH3 mimetics. More recent efforts have uncovered the link between apoptotic caspases and the suppression of damage-associated molecular pattern (DAMP) signalling.
DNA methylation: From Arabidopsis to wheat
Finnegan, E.J. (Australia)

Dr Jean Finnegan

Jean Finnegan is a Senior Principal Research Scientist at CSIRO, Agriculture where she has been investigating mechanisms of epigenetic regulation for nearly 25 years. She isolated the first plant gene encoding a DNA methyltransferase (METI) and generated plants with reduced levels of DNA methylation using an antisense against METI. She and her colleagues determined the molecular basis for some of the abnormal phenotypes displayed by plants with reduced levels of methylation. Then Jean turned her attention to understanding the molecular basis for the memory of winter in vernalized plants. She and her colleagues have made major contributions to understanding the mechanisms involved in the repression of FLC in vernalized plants and to the quantitative nature of the vernalization response. She is currently working on imprinting in rice and on epialleles in wheat. Jean received a Newton-Turner award from CSIRO in 2009, and was awarded the Julian Wells Medal at the Lorne Genome conference in 2012. In 2014, Jean was made a Fellow of the Australian Academy of Science.
10:05 – 10:20

**ASBMB FRED COLLINS FELLOWSHIP PRESENTATION, ASBMB FELLOWSHIP PRESENTATIONS AND PRESENTATIONS OF CERTIFICATES TO LONG STANDING MEMBERS OF THE ASBMB**

**Chair:** Professor Michael Ryan, Monash University, VIC
ASBMB President

**Location:** Plenary Hall 3

**To:**

**ASBMB Fred Collins Award**
Dr Tatiana Soares da Costa, La Trobe Institute for Molecular Science, VIC

**ASBMB Fellowship**
Dr Sandeep Chhabra, Harvard Medical School, USA
Dr Nan Hao, University of Adelaide, SA
Dr Robert Ninnis, Walter & Eliza Hall Institute, VIC
Mr Robert Summers, Australian National University, ACT
Mr Nicholas Rui Yuan Lim, University of Melbourne, VIC

**Long Standing Members of the ASBMB**
A/Prof Jan Anderson  Dr Robert Blakeley
Dr Dean Bottrill  Professor John de Jersey
Dr Micheline Lane  Dr Thomas Lynch
Dr Alan Neill  Professor James Pittard
Dr Gideon Polyer  A/Prof Maria Runnegar
Professor William Sawyer

10:05 – 10:10

**ASPS 2015 FUNCTIONAL PLANT BIOLOGY BEST PAPER AWARD PRESENTATION**

**Chair:** Professor John Evans, Australian National University, ACT
ASPS President

**Location:** Room 220

**To:** Dr My Linh Hoang, Queensland University of Technology, QLD

10:20 – 11:00

**MORNING TEA / EXHIBITION / POSTERS**

**Location:** Exhibition Hall
WEDNESDAY 30 SEPTEMBER 2015

11:00 – 12:30

SYMPOSIUM 25

FRONTIER TECHNOLOGIES IN HOST-PATHOGEN RESEARCH

Chairs: Dr Alyssa Barry, Walter & Eliza Hall Institute, VIC
Dr Michelle Baker, CSIRO, VIC

Location: Plenary Hall 3

11:00 SYM-25-01
Adding CRISPR/Cas9 and Cre/lox-driven *in vivo* models to the virology toolbox
Russell, T.A., Stefanovic, T., Velusamy, T. and **Tscharke, D.C.** (Australia)

11:20 SYM-25-02
Windows into metabolism: Systems and synthetic biology tools for engineering synthetic biological networks and pathways
**Vickers, C.E.** (Australia)

11:40 SYM-25-03
System-level control of fungal immune evasion
Tucey, T., Uwamahoro, N., Naderer, T. and **Traven, A.** (Australia)

12:00 SYM-25-04
System-wide discovery of metabolic pathways in African trypanosomes
**Creek, D.J.,** Kim, D.H., Breitling, R. and Barrett, M.P. (Australia and UK)

12:15 SYM-25-05
The CRISPR-Cas system- a prokaryotic adaptive immune system against invading nucleic acids
**Brown, C.M.,** Croft, B., Biswas, A., Staals, R.H.J. and Fineran, P.C. (New Zealand)
11:00 – 12:30

SYMPOSIUM 26

CANCER GENOMICS AND TRANSCRIPTOMICS

Chairs: Dr Marina Pajic, Garvan Institute of Medical Research, NSW
Dr Oliver Sieber, Walter & Eliza Hall Institute, VIC

Location: Room 219

11:00 SYM-26-01
Characterising the cancer genome in plasma
Dawson, S.J. (Australia)

11:20 SYM-26-02
Transcriptome profiling of single prostate cancer cells in the castrate setting

11:40 SYM-26-03
Genome sequencing reveals mutational processes and therapeutic opportunity in cancer

12:00 SYM-26-04
Exploration of mitochondrial dynamics using a bioinformatic approach
Mahat Basnet, S., Algothmi, K. and Shield, A.J. (Australia)

12:15 SYM-26-05
Single cell gene profiling of mammary epithelium identified novel cell subsets
11:00 – 12:30

SYMPOSIUM 27

OMICS OF METABOLIC AND CARDIOVASCULAR DISEASE

Chairs: Dr Melanie White, University of Sydney, NSW
        A/Prof Peter Meikle, Baker IDI Heart & Diabetes Institute, VIC

Location: Room 217

11:00 SYM-27-01
Oxidative post-translational modifications of caveolar proteins - an important therapeutic target in cardiovascular disease
Figtree, G.A., Tang, O., Karimi Galoughi, K., Arystarkhova, E. and Sweadner, K. (Australia and USA)

11:20 SYM-27-02
Mapping human muscle exercise signaling reveals a kinase network and AMPK substrates

11:40 SYM-27-03
The sphingolipidome and metabolic disease
Summers, S.A. (Australia)

12:00 SYM-27-04 Melbourne Protein Group Lecture
Sirtuin 4 is a lipoamidase regulating the activity of the pyruvate dehydrogenase complex

12:15 SYM-27-05
The TGN golgin, GCC88, modulates the Golgi ribbon
Gosavi, P., Duffield, R. and Gleeson, P.A. (Australia)
11:00 – 12:30

SYMPOSIUM 28

TRANSFORMATIVE TECHNOLOGIES IN REGENERATIVE AND DEVELOPMENTAL BIOLOGY

Chairs: Dr Matt Francois, University of Queensland, QLD
A/Prof Ian Smyth, Monash University, VIC

Location: Room 218

11:00 SYM-28-01
Editing genes in cells and mice using CRISPR/CAS9 methodology
Aubrey, B.J., Kelly, G.L., Kueh, A.J., Brennan, M.S.,
O'Connor, L., Milla, L., Wilcox, S., Tai, L., Strasser, A. and
Herold, M.J. (Australia)

11:20 SYM-28-02
Targeted manipulation of the mammalian epigenome
Tan, D., Ford, E., Swain, T., Nonis, S. and Lister, R.
(Australia)

11:40 SYM-28-03
Exploring the efficacy of next generation sequencing in clinical developmental genetics
Dunwoodie, S.L. (Australia)

12:00 SYM-28-04
Identifying new growth regulatory genes in Drosophila melanogaster
Saligari, M.J., Farrell, P., Moore, K.A., Henstridge, M.A.,
Johnson, T.K., Whisstock, J.C. and Warr, C.G. (Australia)

12:15 SYM-28-05
MEC-17 protects from axonal degeneration, maintaining mitochondrial organization and axonal transport
Neumann, B. and Hilliard, M.A. (Australia)
SYMPOSIUM 29

TRAFFICKING AND TRANSPORT IN PLANT CELLS

Chairs: Professor Tony Bacic, University of Melbourne, VIC
       Professor James Whelan, La Trobe University, VIC

Location: Room 220

11:00 SYM-29-01
Controlling biomass production - a framework for intracellular trafficking of the cellulose synthase in Arabidopsis
Persson, S. (Australia)

11:20 SYM-29-02
Identification and characterisation of a tRNA import receptor into plant mitochondria

11:40 SYM-29-03
Biosynthesis and trafficking of cyclic peptides in plants
Anderson, M.A., Harris, K.S., Durek, T., Poon, S. and Craik, D.J. (Australia)

12:00 SYM-29-04
Moonlighting switches regulate protein microenvironments

12:15 SYM-29-05
Nucleotide sugar transport: Building the plant cell wall
Rautengarten, C., Ebert, B., Scheller, H.V., Orellana, A. and Heazlewood, J.L. (USA, Australia and Chile)
**SYMPOSIUM 30**

**PLANT WATER RELATIONS**

**Chairs:** Dr Brendan Choat, University of Western Sydney, NSW  
Professor Rainer Hofmann, Lincoln University, New Zealand  

**Location:** Room 216

<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>11:00</td>
<td>SYM-30-01</td>
<td>Comparative eco-physiology and hydraulic niche separation of arid-zone species</td>
<td>Nolan, R.H., Eamus, D., Tarrin Terrazas, T., Cleverly, J., Zolfaghar, S. and Ruman, R. (Australia)</td>
</tr>
<tr>
<td>11:40</td>
<td>SYM-30-03</td>
<td>Indirect CO₂ effects on plant productivity - a global view using experiments and a modelling approach</td>
<td>Leuzinger, S., Langley, J.A., Hovenden, M.J. and Fatichi, S. (New Zealand, USA and Switzerland)</td>
</tr>
<tr>
<td>12:00</td>
<td>SYM-30-04</td>
<td>Radial transfer of water between phloem and xylem - key to integrated hydraulic functioning of trees</td>
<td>Pfautsch, S., Holtta, T., Renard, J., Salih, A., Tjoelker, M.G. and Mencuccini, M. (Australia, Paris, United Kingdom and Spain)</td>
</tr>
</tbody>
</table>
12:15  SYM-30-05
Using the osmometer to predict wilting point of wheat genotypes
**Bramley, H.,** Veneklaas, E., Mart, K., Sack, L. and Turner, N.C. (Australia and USA)

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<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tr>
<td>12:30 – 13:00</td>
<td><strong>LUNCH / EXHIBITION / POSTERS</strong></td>
<td>Exhibition Hall</td>
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<td>13:00 – 14:00</td>
<td><strong>POSTER SESSION C</strong></td>
<td>Exhibition Hall</td>
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<tr>
<td>13:45 – 14:00</td>
<td><strong>PASSPORT DRAW</strong></td>
<td>Exhibition Hall</td>
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</table>
PLE-WED-14
Linking kinesin motor structure and function: Small loops make a big difference
Moores, C.A. (United Kingdom)

Professor Carolyn Moores

Carolyn Moores studies regulatory mechanisms of microtubule-dependent machinery using biochemistry, biophysics and cryo-electron microscopy structure determination. The work of the Moores group has particularly focused on (i) the kinesin superfamily of molecular motors that organise and modify the cellular microtubule array and (ii) non-motor regulators of microtubule dynamics, including doublecortin and End Binding proteins. Carolyn has been a group leader at ISMB, Birkbeck College London since 2003, supported by a BBSRC David Phillips Fellowship and a Wellcome Trust University Award. She was promoted to Professor of Structural Biology in 2014. Carolyn studied undergraduate Biochemistry (University of Oxford, UK), a PhD in Structural Biology (MRC Laboratory of Molecular Biology, University of Cambridge, UK, supervised by Dr John Kendrick-Jones), and undertook postdoctoral research at The Scripps Research Institute (California, USA, mentored by Professor Ronald Milligan).
PLENARY 15

PLENARY LECTURE

Chair: Dr Ruth Kluck, Walter & Eliza Hall Institute, VIC
Location: Room 220

PLE-WED-15
Keeping mitochondria in shape: A matter of life and death
Scorrano, L. (Italy)

Professor Luca Scorrano

The work of Luca Scorrano has changed classical tenets in the field of apoptosis and mitochondrial pathophysiology. He discovered the process of mitochondrial cristae remodelling that allows complete cytochrome c release and apoptosis. Since 2003, his lab has made seminal contributions to the understanding of mitochondrial dynamics and biology, from discovering a molecular staple holding cristae junctions tight, the role of ER calcium in apoptosis and the first molecular bridge between ER and mitochondria, how mitochondria control autophagy, to the link between respiratory chain assembly and cristae shape; and the paradigm-shifting notion that development is controlled by mitochondrial fusion via Notch1 signaling. Luca has received several prizes and awards, including the 2006 Eppendorf European Young Investigator award, the 2011 Chiara D’Onofrio prize and the 2013 European Society for Clinical Investigation Award, and was elected an EMBO Member in 2011. After seven years as Professor at the University of Geneva, Switzerland, in 2014, he became Chair of Biochemistry and Director of the Venetian Institute of Molecular Medicine at the University of Padua, Italy.
PLENARY 16

NZSBMB CUSTOM SCIENCE AWARD LECTURE
(Including Presentation of Award)

Chair: A/Prof Kerry Loomes, University of Auckland, New Zealand
NZSBMB Secretary

Location: Plenary Hall 3

PLE-WED-16

Resistance is not futile: bacterial innate and adaptive immune systems
Fineran, P. (New Zealand)

A/Prof Peter Fineran

Associate Professor Peter Fineran is a molecular microbiologist at the University of Otago who investigates the interactions between phages, mobile genetic elements and bacteria. These interactions are major contributors to important processes ranging from global nutrient cycles to the dissemination of antibiotic resistance genes. Peter graduated with a BSc (Hons) from the University of Canterbury, NZ. He undertook his PhD and postdoctoral training at the University of Cambridge, UK and has also worked in Australia and the Netherlands. Peter has built an internationally-recognised team with particular expertise in phage resistance mechanisms, both “innate” toxin-antitoxin/abortive infection and “adaptive” CRISPR-Cas systems. His research has been published in over 45 articles in international journals including the top journals Proceedings of the National Academy of Sciences USA, PLoS Genetics, Nature Reviews Microbiology, Nature Structural and Molecular Biology and Nucleic Acids Research and he has co-edited a book on CRISPR-Cas systems. His research has a significant scientific impact. For example, Peter demonstrated a link between the “innate immunity” abortive infection and toxin-antitoxin systems and discovered an entirely new Type of toxin-antitoxin mechanism. In addition, his team has made critical contributions to the understanding of “adaptive immunity” provided by CRISPR-Cas systems. In recognition of his research achievements, he has received multiple awards, including the Rowheath Trust and Carl Smith Medal for the top emerging researcher at the University of Otago (2014) and a Rutherford Discovery Fellowship (2011) from the Royal Society of New Zealand.
PLENARY 17

NZSPB ROGER SLACK LECTURE
(Including Presentation of Award)

Chair: Professor Rainer Hofmann, Lincoln University, New Zealand
NZSPB President

Location: Room 220

PLE-WED-17
Anthocyanin over-accumulation is prevented by many layers of regulation
Allan, A.C., Schwinn, K. and Espley, R.V. (New Zealand)

A/Prof Andrew Allan

Andrew’s research has centred on the plant’s response to the environment via the transcriptional regulation of key molecular pathways. An understanding of these responses allows improvement in plant growth and breeding of new varieties for NZ’s benefit. Andrew’s work on a variety of cultivated plants has produced significant discoveries in fundamental research. Some of his most recent research has focused on transcriptional regulation of anthocyanins, carotenoids, and chlorophyll in fruits, flowers and vegetables. This research has been published in top plant science journals. His standing in the field is reflected by the number of active international research collaborations with investigators from Italy, China, Thailand, Spain, South Africa, The Netherlands, Australia, and America. Andrew gained his PhD in 1992 at Cambridge University. Returning to NZ in 1997 he joined Plant and Food Research, and lectured at Auckland University from 2003. He is Director for the Joint Graduate School in Plant and Food Science, project leader for several genomics programmes, and full Professor in two Chinese Universities. In 2002 Andrew was awarded the NZSPB Outstanding Physiologist Award, the predecessor to the Roger Slack Award, for research conducted within 10 years of gaining his PhD.

15:30 – 16:00 AFTERNON TEA
Location: Plenary Hall 3 Foyer
16:00 – 17:30

SYMPOSIUM 31

CHEMICAL BIOLOGY IN ANTIMICROBIAL DRUG DISCOVERY

Chairs: Professor Mark von Itzstein, Griffith University, QLD
        A/Prof Martin Scanlon, Monash University, VIC

Location: Room 216

16:00 SYM-31-01
Natural products - large and small - as therapeutic leads
Thompson, R.E., Liu, X., Hsieh, Y.S., Tran, A., Conroy, T.,
West, N.P., Britton, W.J., Hunt, N., Wijeyewickrema, L.C.,
Pike, R.N., Rosenthal, P.J. and Payne, R.J. (Australia and USA)

16:20 SYM-31-02
Dengue antiviral development: Pitfalls and prospects
Vasudevan, S.G. and Watanabe, S. (Singapore)

16:40 SYM-31-03
Glycotherapeutics; old dog, new tricks (drug repurposing to
treat a global outbreak of viral arthritis)
Herrero, L.J., Foo, S.S., Sheng, K.C., Chen, W., Forwood,
M.R., Bucala, R. and Mahalingam, S. (Australia and USA)

17:00 SYM-31-04
Template guided synthesis provides new antibacterials and
antifungals
Paparella, A.S., Feng, J., Blanco-Rodriguez, B., Sternicki,
L.M., Cooper, M.A., Booker, G.W., Abell, A.D. and Polyak,
S.W. (Australia)

17:15 SYM-31-05
Targetting DsbD for the development of novel antibiotics
gainst multi-drug resistant neisserial species
Smith, R.P., Williams, M., Headey, S., Scanlon, M. and Heras,
B. (Australia)
16:00 SYM-32-01
A multi-step classifier addressing cohort heterogeneity improves performance of prognostic biomarkers in cancer
Yang, J.Y.H., Patrick, E., Schramm, S.J., Ormerod, J.T., Scolyer, R., Mann, G. and Mueller, S. (Australia)

16:20 SYM-32-02
Realistic simulation of mutations for improving mutation assessment
Ewing, A.D. (Australia)

16:40 SYM-32-03
Tumour genome evolution & rapid turn around whole-genome cancer diagnostics
Cowley, M.J., Gayevskiy, V., Miller, D., Yoder, S., Padron, E. and Dinger, M.E. (Australia and USA)

17:00 SYM-32-04
Measurement and computational modelling of ERK-MAPK signalling in situ
Cursons, J., Gao, J., Hurley, D.G., Print, C.G., Dunbar, P.R., Jacobs, M.D. and Crampin, E.J. (Australia and New Zealand)

17:15 SYM-32-05
Dynamic models of the JNK signalling network predict neuroblastoma patient outcome
Fey, D., Halasz, M., Kolch, W., Kholodenko, B.N. and Croucher, D.R. (Australia)
<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<th>Authors and Affiliations</th>
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<tr>
<td>16:20</td>
<td>SYM-33-02</td>
<td>Transcriptional changes associated with cardiac contractile depression</td>
<td>Malkovich, S.J., Grubb, D.R. and Woodcock, E.A. (USA and Australia)</td>
</tr>
<tr>
<td>16:40</td>
<td>SYM-33-03</td>
<td>A microRNA-dependent mechanism for scarless healing of the neonatal and adult heart</td>
<td>Porrello, E.R. (Australia)</td>
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<tr>
<td>17:00</td>
<td>SYM-33-04</td>
<td>Understanding and manipulating long-range DNA looping in vivo</td>
<td>Hao, N., Shearwin, K.E. and Dodd, I.B. (Australia)</td>
</tr>
<tr>
<td>17:15</td>
<td>SYM-33-05</td>
<td>The role of glucose transporter 12 in muscle glucose metabolism</td>
<td>Hoang, V.T., Murray-Segal, L. Rogers, S. and Galic, S. (Australia)</td>
</tr>
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16:00 – 17:30

SYMPOSIUM 34

NEURO OMICS

Chairs: Professor Colin Masters, University of Melbourne, VIC  
Dr Tara Pukala, University of Adelaide, SA

Location: Plenary Hall 3

16:00 SYM-34-01
The role of extracellular vesicles in the spread of misfolded proteins associated with neurodegenerative diseases  

16:20 SYM-34-02
Biomarkers for identifying the pre-symptomatic window in AD  
Burnham, S. (Australia)

16:40 SYM-34-03
Plasma proteomics of mild cognitive impairment and Alzheimer's disease - biomarkers and biomechanisms  

17:00 SYM-34-04
Deciphering the pathways of neuronal excitotoxic death by quantitative phospho-proteomics and protease-proteomics  
Ameen, S.S., Ang, C.S. and Cheng, H.C. (Australia)

17:15 SYM-34-05
A novel therapeutic to target neurodegenerative disorders  
Macdonald, J., Houghton, P., Duan, W. and Shigdar, S. (Australia)
16:00 – 17:30

SYMPOSIUM 35

GENOMICS, PHENOMICS AND CLIMATE CHANGE

Chairs: Professor Justin Borevitz, Australian National University, ACT
A/Prof Carla Sgro, Monash University, VIC

Location: Room 218

16:00 SYM-35-01
Uncovering key genes and networks regulating root growth using systems genetics
Busch, W. (Austria)

16:20 SYM-35-02
A hitchhiker's guide to environmental gradients
Andrew, R. (Australia)

16:40 SYM-35-03
TraitCapture: NextGen open-source software for scaling from seeds to traits to ecosystems

17:00 SYM-35-04
Tree responses to heatwaves: Is species distribution and thermal acclimation important?
Aspinwall, M., Pfautsch, S., Varhammar, A., Possel, M., Drake, J., Atkin, O., Reich, P. and Tjoelker, M. (Australia and USA)

17:15 SYM-35-05
Unravelling the molecular adaptive response of oysters to climate change
Goncalves, P., Jones, D.B., Thompson, E.L. and Raftos, D.A. (Australia)
16:00 – 17:30

SYMPOSIUM 36

PLANT NUTRIENT ACQUISITION AND EFFICIENCY

Chairs: Dr Prakash Lakshmanan, Sugar Research Australia, QLD
       Dr Nicole Robinson, University of Queensland, QLD

Location: Room 220

16:00 SYM-36-01
Impact of selection for yield on the nitrogen economy of Australian wheat
Sadras, V.O. (Australia)

16:20 SYM-36-02
GABA signaling modulates root growth by directly regulating the activity of plant-specific anion transporters

16:40 SYM-36-03
Genetic approaches for improving nitrogen use efficiency in plants
Kant, S. (Australia)

17:00 SYM-36-04
Contrasting maize inbreds highlight differences in strategies to root N acquisition and utilisation

17:15 SYM-36-05
High nitrogen increases canopy temperature of water stressed cotton (Gossypium hirsutum L.)
Coast, O., Brodrick, R., Edwards, E. and Bange, M. (Australia)
WEDNESDAY 30 SEPTEMBER 2015

17:35 – 18:30

ANNUAL GENERAL MEETINGS

Locations:  
ASBMB  Room 219  
ASPS  Room 218  
ANZSCDB  Room 217

19:15 – 23:30

CONFERENCE DINNER

Location:  Melbourne Aquarium
09:00 – 10:30

SYMPOSIUM 37

DECIPHERING THE GENETICS OF HOST-PATHOGEN INTERACTIONS

Chairs: Professor Steve Turner, University of Melbourne, VIC
Dr Miriam Sharpe, University of Otago, New Zealand

Location: Plenary Hall 3

09:00 SYM-37-01
Cell intrinsic immunity in influenza A infection
Ma, J.Z., Wijburg, O.L., Brooks, A.G. and Reading, P.C.
(Australia)

09:20 SYM-37-02
Genomics as a tool for understanding the transmission dynamics of malaria

09:40 SYM-37-03
Non-coding and coding RNA networks regulated in an interferon innate immune response.
Forster, S., Gould, J., Jeffrey, K., Papavasiliou, P. and Hertzog, P. (Australia, USA and United Kingdom)

10:00 SYM-37-04
Exploitation of a plant viral satellite RNA to explore cross-kingdom RNA silencing
Heydari, S.H., Tizard, M., Rookes, J.E., Doran, T. and Cahill, D.M. (Australia)

10:15 SYM-37-05
Transcript analysis of the early stages of infection of actinidia chinensis by pseudomonas syringae pv. actinidia using RNA-seq
09:00 – 10:30

SYMPOSIUM 38

CANCER PROTEOMICS AND METABOLOMICS

Chairs: A/Prof Jeff Holst, Centenary Institute, NSW
Professor Roger Daly, Monash University, VIC

Location: Room 219

09:00 SYM-38-01
Metabolic requirements of neuronal dedifferentiation

09:20 SYM-38-02
Linking inflammation, dysregulated metabolism & oestrogen biosynthesis in obesity and breast cancer
Brown, K.A. (Australia)

09:40 SYM-38-03
Systematic identification of ubiquitin ligase substrates in cancer
Saunders, D.N. (Australia)

10:00 SYM-38-04
CYP34A metabolises 20-hydroxyvitamin D3 to products with enhanced biological activity
Cheng, C.Y.S. and Tuckey, R.C. (Australia)

10:15 SYM-38-05
VDAC2 is a vital component of the Bax cell death pathway
Ninnis, R., Ma, S., Tan, I., Webb, A. and Dewson, G. (Australia)
09:00 – 10:30

SYMPOSIUM 39

AGGREGATION AND DISAGGREGATION – STRUCTURAL BIOLOGY IN NEURONAL SYSTEMS

Chairs: Professor David Craik, University of Queensland, QLD
        A/Prof Lisa Martin, Monash University, VIC

Location: Room 217

09:00 SYM-39-01
Probing protein misfolding and aggregates by novel aggregation-induced emission luminogens
Hong, Y. (Australia)

09:20 SYM-39-02
The prevention of protein unfolding and aggregation via molecular chaperone action
Carver, J.A. (Australia)

09:40 SYM-39-03
Amloid formation and inhibition; insights from mass spectrometry
Pukala, T.L., Liu, Y., Graetz, M. and Sanders, H. (Australia)

10:00 SYM-39-04
Orphan G protein-coupled receptor pickpocketing: searching for surrogate ligands by pocket similarity
Ngo, T., Kufareva, I., Coleman, J.L.J., Graham, R.M., Abagyan, R. and Smith, N.J. (Australia and USA)

10:15 SYM-39-05
Peptide drug scaffolds for targeting neurological diseases
Wang, C.K. and Craik, D.J. (Australia)
09:00 – 10:30

SYMPOSIUM 40

SYSTEMS BIOLOGY APPROACHES TO REGENERATIVE AND DEVELOPMENTAL BIOLOGY

Chairs: Dr Nicole Schonrock, Garvan Institute of Medical Research, NSW
Professor Ryan Lister, University of Western Australia, WA

Location: Room 218

09:00 SYM-40-01
Adventures in the ignorome: The search for novel protein functions in developing embryos
Wallingford, J.B. (USA)

09:20 SYM-40-02
Analysis of whole genome sequencing data from two malaria species

09:40 SYM-40-03
Epiblast stem cells and the epiblast: mapping the stem cells to the equivalent cell types in vivo by developmental transcriptomics
Tam, P.P.L., Jing, N. and Han, J.D.J. (Australia and China)

10:00 SYM-40-04
Defective retinoid metabolism disrupts primary sex determination in mice

10:15 SYM-40-05
Understanding epigenetic regulation by the yeast SIR complex through mathematical modelling
Dodd, I.B., Lu, C., Moazed, D. and Sneppen, K. (Australia, USA and Denmark)
09:00 – 10:30

SYMPOSIUM 41

PLANT HORMONES AND SIGNALLING

Chairs: Professor Christine Beveridge, University of Queensland, QLD
Dr Chris Helliwell, CSIRO Plant Industry, ACT

Location: Room 220

09:00 SYM-41-01
Evolution of auxin transcriptional response in land plants
Bowman, J.L., Flores-Sandoval, E. and Eklund, D.M. (Australia)

09:20 SYM-41-02
Plant symbioses are regulated by hormone perception and signal transduction
Foo, E., Ross, J.J., Weller, J.L. and Reid, J.B. (Australia)

09:40 SYM-41-03
Transcriptome reprogramming by plant hormone signaling in plant development
Tanurdzic, M., Atallah, N., Kerr, S., Pocock, A., Banks, J. and Beveridge, C. (Australia and USA)

10:00 SYM-41-04
Strigolactone signalling combines information about light quality and nutrient availability to regulate branching

10:15 SYM-41-05
Flowering on time: role of polycomb in the transition to flowering in the model legume Medicago
Putterill, J.J., Jaudal, M., Zhang, L. and Mysore, K. (New Zealand and USA)
09:00 – 10:30

SYMPOSIUM 42

SEED PHYSIOLOGY AND REPRODUCTIVE BIOLOGY

Chairs: Professor Steve Smith, University of Tasmania, TAS
A/Prof Richard Macknight, University of Otago, New Zealand

Location: Room 216

09:00 SYM-42-01
Genetic and biochemical mechanisms of pollen wall development
Zhang, D.B. (Australia)

09:20 SYM-42-02
Communication between the generations in plants: dissecting the role of small RNAs, hormones and cell wall composition in reproductive cell specification

09:40 SYM-42-03
The pea CYCLING DOF FACTOR gene LATE2 participates in the flowering response to photoperiod

10:00 SYM-42-04
Evaluation of advanced backcross populations of iron and zinc-biofortified rice
Moreno-Moyano, L.T., Tohme, J. and Johnson, A.A.T. (Australia and Colombia)
10:15 SYM-42-05
Cell wall glycosylation marks the cell fate switch of somatic cells to an asexual female gamete formation pathway in apomictic Hieracium

10:30 – 11:00 MORNING TEA
Location: Plenary Hall 3 Foyer
THURSDAY 1 OCTOBER 2015

11:00 – 12:30

SYMPOSIUM 43

IMAGING THE MOLECULAR LIFE OF PATHOGENS

Chairs: Professor Leann Tilley, University of Melbourne, VIC
        Dr Elizabeth Hinde, University of New South Wales, NSW

Location: Plenary Hall 3

11:00 SYM-43-01
Microbial cell biology revealed in super resolution
Turnbull, L. and Whitchurch, C.B. (Australia)

11:20 SYM-43-02
Cryo-EM as a tool to understand the molecular mechanisms of ribosome targeting antimalarial drugs
Wong, W., Bai, X.C., Jackson, K., Brown, A., Sleebs, B.E., Triglia, T., Cowman, A.F., Ralph, S.A., Scheres, S.H.W. and Baum, J. (Australia and UK)

11:40 SYM-43-03
Single-molecule studies of bacterial DNA replication and repair
Van Oijen, A.M. (Australia)

12:00 SYM-43-04
Nano scale imaging of the RBC cytoskeleton in plasmodium infected cells

12:15 SYM-43-05
Novel inhibitors targeting HIV protein nuclear transport
THURSDAY 1 OCTOBER 2015

11:00 – 12:30

SYMPOSIUM 44

THERAPEUTICS FOR METABOLIC AND CARDIOVASCULAR DISEASE

Chairs: Professor Arthur Christopoulos, Monash Institute of Pharmaceutical Sciences, VIC
        Professor David James, University of Sydney, NSW

Location: Room 219

11:00 SYM-44-01
CNS control of WAT browning
Tiganis, A. (Australia)

11:20 SYM-44-02
Small molecules foiling drug discovery: Histone acetyltransferase inhibitors as an example
Baell, J.B. (Australia)

11:40 SYM-44-03
Fluorescence imaging of oxidative stress
Kaur, A., Jankowska, K. and New. E.J. (Australia)

12:00 SYM-44-04
The molecular basis of differential efficacy at the calcitonin receptor; a model family B GPCR

12:15 SYM-44-05
AMPK crystal structure with the allosteric activator C2
11:00 – 12:30

SYMPOSIUM 45

ANIMAL MODELS OF NEUROLOGICAL DISEASE

Chairs: Professor Lars Ittner, University of New South Wales, NSW
Dr Jess Nithianantharajah, Florey Institute of Neuroscience and Mental Health, VIC

Location: Room 217

11:00 SYM-45-01
'Learning and memory' and 'sleep': Behavioural relevance of autism risk genes in drosophila and honeybee

11:20 SYM-45-02
Evaluating the validity of a novel transgenic mouse model for neuregulin 1 type III for schizophrenia
Karl, T. (Australia)

11:40 SYM-45-03
A tau-like protein regulates neuronal aging and the response to oxidative stress in C. elegans
Chew, Y.L., Fan, X., Goetz, J. and Nicholas, H.R. (Australia)

12:00 SYM-45-04
Rab1-dependent cellular transport dysfunction is a common pathogenic mechanism in ALS
Atkin, J.D., Holloran, M., Sundaramoorthy, V., Farg, M., King, A., Southam, K. and Soo, K.Y. (Australia)

12:15 SYM-45-05
Transcriptome analyses using human and zebrafish brain data reveal hypoxia as an important element in Alzheimer's disease
Ebrahimie, E., Newman, M., Moussavi Nik, S.H., Van Der Hoek, M. and Lardelli, M. (Australia)
11:00 – 12:30

SYMPOSIUM 46

EPIGENETICS AND TRANSCRIPTATIONAL CONTROL IN REGENERATIVE AND DEVELOPMENTAL BIOLOGY

Chairs: Dr Minni Anko, Monash University, VIC
Professor Patrick Tam, Children’s Medical Research Institute, NSW

Location: Room 218

11:00 SYM-46-01
Ezh2 is essential for lung development and controls lineage specification through regulation of IGF-1 expression

11:20 SYM-46-02
Epigenetic inheritance and the legacy of parental obesity
Suter, C. (Australia)

11:40 SYM-46-03
Dissecting the molecular events during reprogramming of different somatic cells into induced pluripotent stem cells
Polo, J.M. (Australia)

12:00 SYM-46-04
Identifying direct targets of a histone acetyltransferase, MOZ, in palate development

12:15 SYM-46-05
Autocrine ligands activate the expression of immediate early response genes and late response genes at the time of embryonic genomic activation in the mouse 2-cell embryo
Jin, X. and O’Neill, C. (Australia)
11:00 – 12:30

SYMPOSIUM 47

PLANT CELLS AND ORGANELLES

Chairs: Professor Barry Pogson, Australian National University, ACT
Dr Chris Cazzonelli, University of Western Sydney, NSW

Location: Room 220

11:00 SYM-47-01
Deciphering mitochondrial metabolism in wheat during salinity exposure by combining classical respiratory biochemistry and cutting edge mass spectrometry
Jacoby, R.P., Che-Othman, M.H., Millar, A.H. and Taylor, N.L. (Australia and Germany)

11:20 SYM-47-02
Biochemical basis for oxidative stress sensing and activation of the chloroplast signal PAP by a moonlighting enzyme

11:40 SYM-47-03
Mitochondrial drug targets in malaria: A perfect bullseye?
McFadden, G.I. (Australia)

12:00 SYM-47-04
Membrane vesicles maintain spindle separation during male meiosis in plants
Brownfield, L.R., Yi, J., Leask, M., Cabout, S. and Koehler, C. (New Zealand and Sweden)

12:15 SYM-47-05
High throughput chemical genetics using the plant cell wall
Ivakov, A.A., Scherer, U. and Persson, S. (Australia and Germany)
11:00 – 12:30

SYMPOSIUM 48

AGBIOTECH AND FOOD PRODUCTION

Chairs: Professor Marilyn Anderson, La Trobe Institute for Molecular Science, VIC
        Professor James Dale, Queensland University of Technology, QLD

Location: Room 216

11:00 SYM-48-01
Cell wall polysaccharide biosynthesis in oomycete pathogens: A target for crop protection
Bulone, V. (Australia and Sweden)

11:20 SYM-48-02
Domesticating crops in the 21st century
Hellens, R.P. (Australia)

11:40 SYM-48-03
Resistance gene identification in *Brassica napus*: a pan genome approach
Tollenaere, R., Hayashi, S., Alamery, S., Bayer, P., Golicz, A., Chaloub, B., Edwards, D. and Batley, J. (Australia and France)

12:00 SYM-48-04
Plants as production vehicles for cyclic thearpeutic peptides
Jackson, M.A., Gilding, E.K., Jia, H. and Craik, D.J. (Australia)

12:15 SYM-48-05
Engineering flower structure for germline transformation of *Brassica* species
Hassan, M.M. and Golz, J.F. (Australia)

12:30 – 13:30  LUNCH BREAK (lunch may be purchased at nearby cafés)
PLENARY 18

PLENARY LECTURE

Chair: Professor Thomas Preiss, JCSMR, Australian National University, ACT
Location: Plenary Hall 3

PLE-THU-18
Dissection of RISC assembly and function by single-molecule imaging
Tomari, Y. (Japan)

Professor Yukihide Tomari

Yukihide Tomari is Professor at Institute of Molecular and Cellular Biosciences, The University of Tokyo. After receiving his Ph.D. from The University of Tokyo in 2003, he joined Phillip Zamore’s laboratory at University of Massachusetts Medical School as a postdoc, where he started working on small RNAs. In 2006, he was appointed Assistant Professor, PI at The University of Tokyo, advanced to Associate Professor in 2009 and promoted to Professor in 2013. His laboratory is focused on dissecting the molecular mechanism and function of non-coding RNAs by combining biochemistry, biophysics, and cellular and developmental biology. For his scientific contributions, he has been awarded Japan Academy Medal and JSPS Prize in 2012.
John Wallingford began his career in developmental biology as an undergraduate Wesleyan University, and continued as PhD student at the University of Texas at Austin. During a joint postdoc with Richard Harland at the University of California, Berkeley, and Scott Fraser at Caltech, he launched a research program which seeks to understand how cellular form and function arise in developing embryos. Since returning to the University of Texas at Austin as a faculty member, his group has sought to integrate systems biology and bioinformatics with novel strategies for in vivo imaging, the ultimate aim being to understand the etiology of human developmental disorders. Professor Wallingford has received numerous teaching awards, as well as an Early Career Scientist Award from the Howard Hughes Medical Institute, an Early Investigator Award from the American Asthma Foundation and a Career Award in the Biomedical Sciences from the Burroughs Wellcome Fund.
PLENARY 20

ANNALS OF BOTANY LECTURE

Chair: Dr Kim Plummer, La Trobe University, VIC
Location: Plenary Hall 3

PLE-THU-20

The rice immune receptor XA21 recognizes a tyrosine-sulfated protein from a gram-negative bacterium

Ronald, P.C. (USA)

Professor Pamela Ronald

Pamela Ronald is a Professor in the Department of Plant Pathology and the Genome Center at the University of California, Davis. She also serves as director of Grass Genetics at the Joint Bioenergy Institute in Emeryville, CA, and Faculty Director of the UC Davis Institute for Food and Agricultural Literacy. She received a PhD from UC Berkeley, a MS in plant biology from Stanford, a MS in Plant Physiology from the University of Uppsala, Sweden, and carried out postdoctoral training at Cornell. Her laboratory has engineered rice for resistance to disease and tolerance to flooding. She and her colleagues received the USDA 2008 National Research Initiative Discovery Award for their work on rice submergence tolerance. In 2012, Pamela was awarded the Louis Malassis International Scientific Prize for Agriculture and Food and the Tech Award for innovative use of technology to benefit humanity. She is coauthor of Tomorrow’s Table: Organic Farming, Genetics, and the Future of Food, recommended by Bill Gates as a “fantastic piece of work.”
THURSDAY 1 OCTOBER 2015

15:35 – 16:00

CLOSING CEREMONY
COMBIO2016 PRESENTATION
AND
SOCIETY AWARD PRESENTATIONS

Location:  Plenary Hall 3

A/Prof Marie Bogoyevitch, University of Melbourne, VIC
A/Prof Ed Newbigin, University of Melbourne, VIC
Co-Chairs, ComBio2015 Local Organizing Committee

A/Prof Joe Rothnagel, University of Queensland, QLD
Chair, ComBio2016 Local Organizing Committee

Professor Michael Ryan, Monash University, VIC
ASBMB President

Professor John Evans, Australian National University, ACT
ASPS President

A/Prof Carol Wicking, University of Queensland, QLD
ANZSCDB President

A/Prof Kerry Loomes, University of Auckland, New Zealand
NZSBMB Secretary

A/Prof Rainer Hofmann, Lincoln University, New Zealand
NZSPB President

16:00 – 17:00  CLOSING DRINKS
Location:  Plenary Hall 3 Foyer