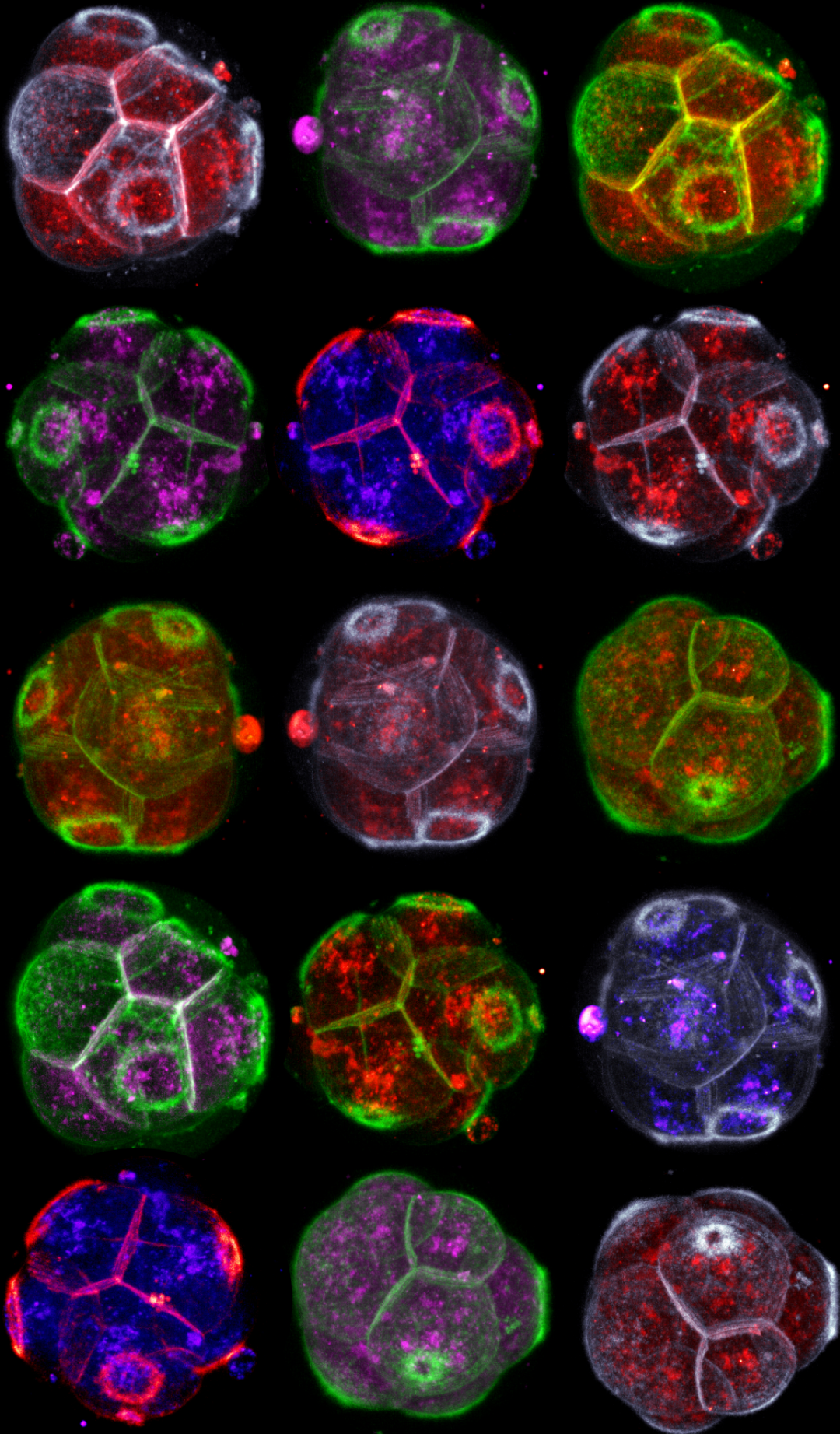


ANZSCDB

Australia and New Zealand Society for
Cell and Developmental Biology Inc.



SUMMER NEWSLETTER 2022

ANZSCDB

Australia and New Zealand Society for
Cell and Developmental Biology Inc.



NEWSLETTER DECEMBER 2022

President's Report

Dear Members,

As we come to the end of another year and look forward to a well-earned rest, I have taken the opportunity to reflect on some of the society's achievements over the past 12 months. As President of ANZSCDB, I am very proud of everything we have achieved in 2022 and want to sincerely thank my fellow ANZSCDB executive members Jenny Zenker and Alex Combes for the enormous amount of work you have each committed to ANZSCDB over the past 12 months. I thank you not only for fulfilling your roles as Treasurer and Secretary with aplomb, but for rolling up your sleeves and committing many hours of your time to tackle the new initiatives we have embarked on.

You will hear more about some of these initiatives in 2023 but two that I can share now relate to our State meetings and our membership base.

Enhancing our State ANZSCDB meetings

State ANZSCDB meetings, which are organised by our State and New Zealand representatives, bring together Australian and New Zealand cell biologists and developmental biologists to meet, discuss our science and raise the profile of our community nationally and internationally. They provide invaluable career development opportunities to our members and an excellent opportunity to recruit new members to our Society. An initiative of the current ANZSCDB executive has been to streamline the organisation of these meetings and to further leverage them to recruit new members to our Society.

In consultation with ANZSCDB Council and State representatives, we wrote a Guidelines document for State ANZSCDB meetings, for use by ANZSCDB state and New Zealand representatives. By providing these guidelines, as well as a central repository for associated conference organisation documents, we aim to:

1. Increase the efficiency of organisation of ANZSCDB state meetings and thereby minimise the workload on ANZSCDB state representatives.
2. Increase the number of locations where ANZSCDB state meetings are held (i.e. in New Zealand and Australian states and territories that currently do not hold them).
3. Increase the ANZSCDB membership base.

In this issue

P3 ANZSCDB @ ComBio

P8 Engagement &
Consultation

P9 News & Activities

P12 ANZSCDB awards @
ComBio

P15 Upcoming meetings

P16 Meeting Reports

- ANZSCDB Adelaide Meeting

- CCB Awards

- ANZSCDB Qld Meeting

- ISMB 2022

P24 Corporate Member News

I was fortunate enough to participate in the South Australian ANZSCDB meeting on November 2, which was a huge success. The quality of the presentations from our members was outstanding and it was a very vibrant and engaging meeting. Please see pages 16/17 for a full report from Anna Oszmiana and Yasmyn Winstanley. Our Queensland and Victorian ANZSCDB meetings, held on November 25 and December 13, respectively, were equally successful, each having more than 115 attendees. Please see below for a report on the Queensland meeting by Merja Joensuu and Ivar Noordstra. A report on the Victorian meeting (organisation led by Brooke Huuskes and Jan Manent) will feature in our autumn newsletter, while the NSW meeting (organisation led by Emily Don and Peter Su) will be held in 2023.

ANZSCDB Membership base

It goes without saying that the more members ANZSCDB can attract to our society, the greater we can do for our community. As such, another major initiative of the current executive has been to increase ANZSCDB's membership base. We have employed various strategies to do this including increasing and diversifying our communications and implementing the requirement to be a member to present at an ANZSCDB state meeting.

It is now incredibly pleasing to see that our membership has more than doubled in 2022 (from 169 in February to 357 at the present day). Thank you very much to all our new and existing members!

ComBio

ComBio is the biannual meeting of the ANZSCDB; unfortunately, because of COVID, ComBio 2020 was postponed twice but, thankfully, was able to be held this September in Melbourne. A huge thank you to Sarah Russell and Seb Dworkin, as well as Louise Cheng and Patrick Humbert for assembling exciting ANZSCDB streams and appointing excellent Chairpersons at ComBio 2022. Also, thank you to all ANZSCDB members that chaired sessions and gave oral and poster presentations, as well as our judges of talk and poster prizes. Thanks also to Brooke Huuskes and Jan Manent for organising another fun ANZSCDB dinner at ComBio – it was so good to celebrate with everyone in person. Please see on pages 3/4 for an overview of the DSCRM Stream at ComBio 2022.

ComBio will next be held in 2024 and promises to be a very exciting conference. It will be branded as Biomolecular Horizons 2024 and held as a joint event between IUBMB, FAOBMB and ComBio at the Melbourne Convention Centre. Leonie Quinn (ANU) and Sharad Kumar (UniSA) will lead ANZSCDB representation on the organising committee and have already commenced planning. We hope to see you all there.

The ANZSCDB President Elect, Aleksandra Filipovska

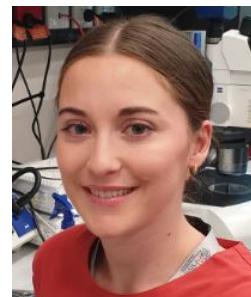
The ANZSCDB president serves a 2-year leadership term. The society aims to ensure that our Presidents represent the many different aspects of our society that make it a success and serve our membership base effectively. It is my great pleasure to inform you that Aleksandra Filipovska has been chosen as ANZSCDB's President Elect. Aleks, who is based at the Harry Perkins Institute of Medical Research in Western Australia, is a stellar scientist, having made major discoveries on the role of mitochondria in both health and disease. Aleks has also held many important leadership positions and I am confident that she will be a very effective leader of ANZSCDB. Aleks will commence her term as ANZSCDB President in October 2023.

I wish you all an enjoyable festive season and look forward to seeing you in 2023.

Kieran Harvey, President, ANZSCDB

Cover: Life imitating art

"This Warhol-esque array of live mouse embryos were captured on a Zeiss LSM780 confocal microscope. Embryos are expressing EB3-dTomato, allowing identification of microtubule growth hotspots as well as Membrane-GFP, showing apical cortical rings which will expand and constrict to compact the embryo during preimplantation development." **Dr Jessica Greaney** Australian Regenerative Medicine Institute, Monash University



Keep up to date: Remember to follow [@ANZSCDB](https://twitter.com/ANZSCDB) on Twitter for news and tag us in your work-related posts for retweets.

Contribute to the ANZSCDB newsletter!

Please send items to [Alex Combes](#), the society Secretary, or get in touch with your [state representative](#). We want to hear about your latest papers, promotions, prizes and other news, perspectives, or opinion pieces about life as a student, RA, Postdoc or PI in cell biology or developmental biology. The newsletter will be published 3 times a year and distributed to all ANZSCDB members via e-mail. Previous newsletters are hosted on our [website](#). Please ensure that your submissions are succinct and have been fact-checked.

ANZSCDB @ ComBio2022

Thank you to Dr Sarah Russell from the Peter MacCallum Cancer Centre & Swinburne University of Technology, **who represented ANZSCDB on the ComBio2022 Organising Committee and coordinated the Cell Signalling Stream.** [Dr Russell's research](#)

focusses on T cell development and the T cell response to pathogens and Cancer. Dr Russell is also known as an advocate for gender equality, cofounding the [Women in Science Parkville Precinct](#) initiative and serving as a member of the [AAMRI Gender Equality, Diversity and Inclusion Committee](#).

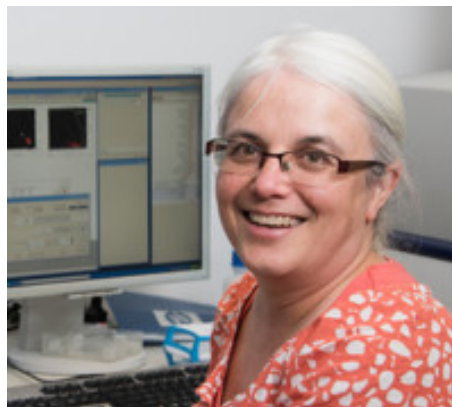


Photo: Petermac.org

ComBio2022 Development, Stem Cells and Regenerative Medicine Stream Report

Wow – what an exciting few days of incredible science, particularly in the Development, Stem Cells and Regenerative Medicine Stream. We were treated to cutting edge scientific talks from both established Australian and international leaders in our fields, as well as by the emerging next wave of exceptional students, postdocs and junior group leaders. The meteoric advances in ex vivo/organoid culture, microscopy, imaging, new application of animal models and particularly transcriptomics and bioinformatics analysis has advanced profoundly since our last face-to-face ComBio meeting in 2018, and has undoubtedly positioned Australian scientists at the forefront of international discoveries.

Within our stream, our two international plenary speakers, Prof. Cristina Lo Celso and Prof. Daniel St. Johnston, both presented exceptional talks, highlighting their incredible mastery and advances in live-organism imaging. Prof. Lo Celso brought to the fore her expertise in intravital imaging of the hematopoietic stem cell niche, highlighting new roles for non-hemopoietic cells (particularly osteoblasts) in the context of both infection and leukemogenesis. Prof. St. Johnson showcased his groups' recent advances in understanding apical-basal polarity, using *Drosophila* epithelia as a model. The clarity of both these talks, particularly to non-experts, was exceptional.

Many of the speakers in our stream are members of ANZSCDB. Attendees were treated to outstanding presentations from the ANZSCDB Emerging Leader Awardee, **A/Prof. Kelly Smith**, on her work uncovering novel genetic mechanisms regulating cardiac rhythm, and the President's Medal awardee, **Prof. Jose Polo**, who presented a truly outstanding session on his work in understanding the fundamental events in the very earliest stages of human embryogenesis – ground-breaking research that would definitively captivate audiences in any international scientific forum. We would like to extend our warmest congratulations to you both for your pioneering and elegant research.

Additionally, two ANZSCDB oral prizes were on offer, the Toshiya Yamada Award (Best Post-Doc Oral presentation) and the David Walsh Oral Prize (Best Student Oral presentation). The Toshiya Yamada prize was awarded to **Dr. Benjamin Kroeger**, for his work on imaging Hippo/Warts signalling in fly epithelia, with honourable mentions to Dr. Ivar Noordstra (adherens junction assembly), Dr. Laura Fenlon (developmental gene expression in neural patterning) and Dr. Axel Newton (neural crest cell dynamics in craniofacial evolution). The David Walsh prize was awarded to **Stephanie Rutter**, for her work on cellular apoptosis, with her beautifully macabre-titled talk "The footprint of death"; an honourable mention in this category going to Yunan Ye for her elegant presentation on microtubule/actin dynamics in the first (2-cell) stage of mouse embryogenesis.

Louise and I would like to thank the many wonderful symposia chairs who outdid themselves in assembling such an incredible array of engaging scientific leaders to showcase their research throughout the meeting. Special mention must go to A/Prof. Robin Hobbs, who gave the most thoughtful, erudite and eloquent introduction to a session in probably the entire history of ComBio, and those of us who were there to hear it will be forever inspired by the memory. Kudos to you, Robin!

A/Prof **Louise Cheng**,
Organogenesis and Cancer Program
Peter MacCallum Cancer Centre

& Dr **Seb Dworkin**
Head, Developmental Genetics Group
& Senior Lecturer, La Trobe University



Facing the camera from left to right: Seb Dworkin, Karla Helbig, Stephanie Gras, Lakshmi Wijeywickrema



Night out (left to right) with Melanie White, Kelly Smith, Seb Dworkin, Emma Gordon, Sam Stehbens and Anne Lagendijk

ANZSCDB @ ComBio2022



ANZSCDB @ANZSCDB · Sep 28
 @LabZenker speaking in the early development and patterning session @ComBio2022, following exceptional talks from @ArkellLab and Patrick Tam



🗨️ 2 ❤️ 9 ↗️



ANZSCDB @ANZSCDB · Sep 28
 @DrNatashaHarvey pointing out how lymphatic vessels are built in her presentation @ComBio2022 @ANZSCDB . Wonderful talk! @UniversitySA @CCB_Research



🗨️ 3 ❤️ 33 ↗️



ANZSCDB @ANZSCDB · Sep 28
 @ANZSCDB early career award winner and Qld state representative @Inoordstra giving a brilliant talk @ComBio2022 on the role of the cytoskeleton and adherens junctions in cell migration and adhesion



🗨️ 3 ❤️ 37 ↗️



ANZSCDB @ANZSCDB · Sep 28
 @ANZSCDB member @ThompsonLab in action chairing a fascinating session on tissue architecture and cell polarity @ComBio2022



Kieran Harvey presenting the ANZSCDB President's Medal to Professor Jose Polo.



Kieran Harvey presenting the ANZSCDB Emerging Leader Award to A/Prof Kelly Smith.



Pete Currie @petecurr · Sep 29

The wonderful A/Prof Kelly Smith presenting her award lecture after receiving the ANZSCDB emerging leaders award. Congrats to Kelly.

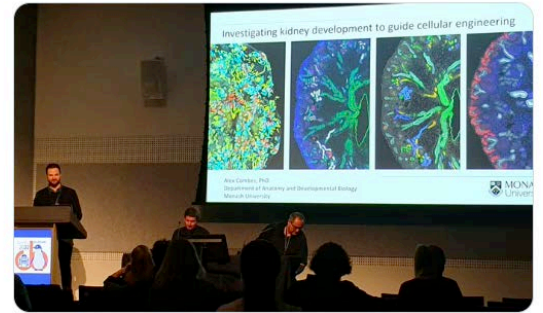


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ANZSCDB @ANZSCDB · Sep 30

@ANZSCDB secretary @AlexKoomz presenting new insights into #kidney development and #organoids at #ComBio2022.



1 26



ANZSCDB @ANZSCDB · Sep 29

@ANZSCDB member and group leader @IMBatUQ @Lagendijk_Lab kicking off the mechanobiology session @ComBio2022 with some amazing live imaging in the zebrafish vasculature



2 38



ANZSCDB @ANZSCDB · Sep 30

@Lizzie_Mason_ from @BenjaminHogan13 lab speaking in the Development at the single cell level @ComBio2022



1 18



Jennifer Zenker speaking on the role of microtubules in early development

ANZSCDB ComBio Dinner @ Boho South Wharf



ANZSCDB @ANZSCDB · Sep 16



The traditional annual [@ANZSCDB](#) dinner is back: please join us on Thursday, 29th September at 08.00pm at Boho South Wharf for a social get-together after a science-packed day at [#ComBio](#) and the [@ANZSCDB](#) AGM. A registration link was sent to all ANZSCDB members via email.



Engagement & consultation

A call for opinion pieces for the ANZSCDB newsletter:

Several important issues were raised for discussion at the ANZSCDB AGM including challenges and opportunities that are important to our members, and in some cases, the broader Australian biomedical research community. These included the importance of advocacy with the public and government to ensure that Australian scientists are not disadvantaged by limitations on certain types of research. As an important mode of communication among our members, we welcome opinion pieces on such topics from our members for publication in the ANZSCDB newsletter. The aim is to provide a medium where a discussion of such issues can be disseminated more broadly. If you would like to write such an opinion piece for the ANZSCDB newsletter, please send for consideration to the ANZSCDB executive via Kieran Harvey (kieran.harvey@petermac.org or kieran.harvey@monash.edu).

Diversity & Inclusion:

ANZSCDB is looking for a Diversity & Inclusion officer

An exciting new role is open at ANZSCDB as Diversity & Inclusion officer and it is your chance to take the lead. This is an important and impactful role in shaping ANZSCDB, leveraging Australia's and New Zealand's cell and developmental biology community by strengthening our diverse and inclusive culture and to develop your leadership skills.

In collaboration with the ANZSCDB Executive, the Diversity & Inclusion officer will engage with our membership base, develop Diversity & Inclusion strategies to celebrate, value and include members of all backgrounds, genders, identities, cultures and abilities in research, teaching and industry. With the addition of a Diversity & Inclusion officer, ANZSCDB aims to enhance the society's commitment to increased diversity and inclusion, and to build an impactful outreach programme.

The position is open to all members. We encourage interest from people of underrepresented groups. If you wish to obtain more information or this is of interest of you, please contact jennifer.zenker@monash.edu (ANZSCDB Treasurer).

Community feedback on draft ANZSCDB Diversity & Inclusion statement

The ANZSCDB Executive has formulated a Diversity & Inclusion statement to foster a welcoming environment that respects, acknowledges and celebrates differences. The draft is now available to all ANZSCDB members at <https://www.anzscdb.org/diversity-and-inclusion> and we invite all ANZSCDB members to read it and provide us with your feedback which will allow us to cover all values of our society members. Please send your feedback to jennifer.zenker@monash.edu before the official launch early 2023.

Communications & Engagement:

ANZSCDB is looking for Communications & Engagement Officers

Experienced and aspiring science communicators and policymakers sought to enhance ANZSCDB Communications and Engagement.

Communications and Engagement officers will join ANZSCDB State Representatives, Executive, and the incoming Diversity & Inclusion officer to source, curate and publish content for the ANZSCDB newsletter, email list and social media. Officers will identify and promote topics of interest to the society, seek and distribute member news, and establish pathways for advocacy and policy development for the fields of cell biology and developmental biology.

These national leadership roles aim to advocate for issues relevant to members at all career stages. As such, we welcome involvement from RAs, PhD students, ECRs, MCRs, and senior scientists. Please send expressions of interest to ANZSCDB Secretary Alex Combes on alex.combes@monash.edu.

News and Activities

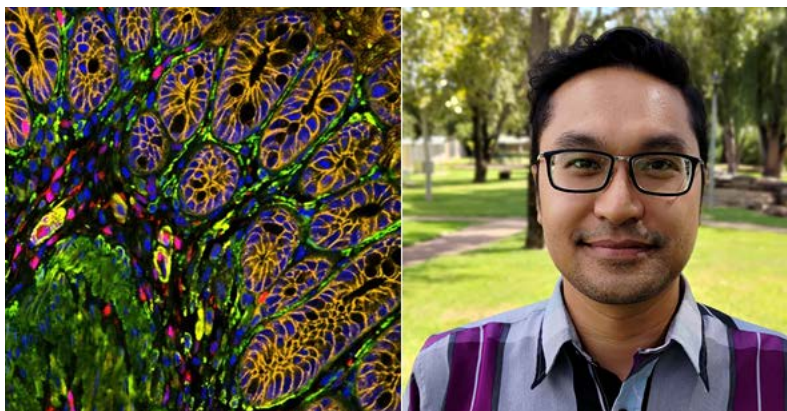
Congratulations to ANZSCDB Treasurer **Dr Jennifer Zenker** from the Australian Regenerative Medicine Institute (Monash University) who has been awarded a prestigious Silvia & Charles Viertel Senior Medical Research Fellowship.

2022 ANZSCDB President's medallist, **Professor Jose Polo has recently been appointed as the Director of the newly formed Adelaide Centre for Epigenetics** (ACE) located at Adelaide University. Professor Polo will bring his cutting-edge technology in stem cell models to his lab in South Australia. The Polo lab is also part of South Australia immunoGENomic Cancer Institute (SAiGENCI), as such Professor Polo will also apply his technology to understanding the epigenetics of cancer. The Polo lab in Adelaide is growing steadily and has recently recruited Dr. German Mora from Mexico, where he was the first to generate iPSC from Mexican patients. *The lab is currently seeking high achieving and enthusiastic applicants in the areas of development, epigenetics, and cancer. Please contact Professor Polo for more details* jose.polo@adelaide.edu.au

Director of the Centre for Cancer Biology, **Professor Natasha Harvey has received the Lymphatic Education and Research Network Career Achievement Award at the 2022 Gordon Research Conference on Lymphatics**. This prestigious award recognizes significant contributions to the promotion and support of lymphatic research, to advancing lymphatic research, and to finding improved treatments and cures for lymphatic diseases. Congratulations to Natasha on her success!



Congratulations to SA member **Zahied Johan** from the Tumour Microenvironment Laboratory at the Centre for Cancer Biology in Adelaide for receiving an honorable mention in the 2022 ZEISS Microscopy Image Contest. Zahied's image depicts a paraffin section of mouse large intestine, stained using FSP1 (green), aSMA (red), E-cadherin (orange) and DAPI (nuclei, blue).



Member publications

Tevin Chau and colleagues from Anne Lagendijk's lab at the Institute for Molecular Bioscience (University of Queensland) have recently published in ***Development***. The team used a new Talin1 zebrafish mutant and a Vinculinb-eGFP reporter line to demonstrate that endothelial focal adhesions are required for the correct arrangement of endothelial cells in flow pressured vessels. This work provides insight into the mechanisms of pathological vascular leakage and is the subject of an upcoming editorial highlight.

[Dynamically regulated focal adhesions coordinate endothelial cell remodelling in developing vasculature.](#)

Chau TCY, Keyser MS, Da Silva JA, Morris EK, Yordanov TE, Duscycz KP, Paterson S, Yap AS, Hogan BM, Lagendijk AK. *Development*. 2022 Oct 31;dev.200454. doi: 10.1242/dev.200454. PMID: 36314606

Members of the **Polo lab** recently published a paper in ***Nature Protocols*** specifying how to generate and maintain induced trophoblast stem cells (iTSC) using reprogramming technology from their breakthrough human reprogramming roadmap published in *Nature* in 2020. This technology can model early placentation and will open the door to uncover the molecular and cellular dynamics critical to the implantation process and early trophoblast differentiation in both normal development and disease models.

[Establishment of human induced trophoblast stem cells via reprogramming of fibroblasts.](#)

Tan JP, Liu X, Polo JM. *Nat Protoc*. 2022 Dec;17(12):2739-2759. doi: 10.1038/s41596-022-00742-2. Epub 2022 Oct 14. PMID: 36241724

Sebastian Palacios Martinez, Jessica Greaney and Jennifer Zenker have recently published an invited review in ***Current Opinion in Cell Biology***. This publication explores the function and conservation of microtubule organising centres in mouse, and higher mammals including human, bovine, pig and sheep. Considering differences that exist between human and non-human models, and the critical role of the microtubule network in early embryogenesis,

this review showcases the importance of understanding the regulation of early development on a larger scale.

[Beyond the centrosome: The mystery of microtubule organising centres across mammalian preimplantation embryos.](#)

Palacios Martínez S, Greaney J, Zenker J. *Curr Opin Cell Biol.* 2022 Aug;77:102114. doi: 10.1016/j.ceb.2022.102114. Epub 2022 Jul 14. PMID: 35841745

Hartmut Cuny and colleagues from the Dunwoodie lab at the Victor Chang Cardiac Research Institute have recently published a paper in ***Disease Models & Mechanisms*** exploring a gene affecting NAD, an important metabolite that can be synthesised from tryptophan. The team showed that heterozygous loss of *Slc6a19*, an amino acid transporter responsible for transporting free tryptophan, can affect NAD metabolism and disorders related to NAD-deficiency.

[Maternal heterozygosity of Slc6a19 causes metabolic perturbation and congenital NAD deficiency disorder in mice.](#)

Cuny H, Bozon K, Kirk RB, Sheng DZ, Bröer S, Dunwoodie SL. *Dis Model Mech.* 2023 May 1;16(5):dmm049647. doi: 10.1242/dmm.049647. Epub 2022 Nov 14. PMID: 36374036

Highlight your next paper in the newsletter or via the ANZSCDB Twitter account

Journal News: *Mechanisms of Development* is now continued as [Cells & Development](#). Being the official journal of [The International Society of Developmental Biologists](#) (ISDB), *Cells & Development* is an international journal covering the areas of cell biology and developmental biology, in any model system, using a variety of approaches, such as cellular, biomechanical, molecular, quantitative, computational and theoretical biology. *Cells & development* is running a [special issue on quantitative cell and developmental biology](#) with Guest Editors Roberto Mayor, Ana-Maria Lennon, Carl-Philipp Heisenberg and Guillaume Salbreux. Read more about the aims and scope of the journal [online](#) or at the end of this newsletter. You can follow the journal on twitter [@CellsDev](#) and consider it for your next publication.

ANZSCDB ComBio Award Winners 2022

The Toshiya Yamada Early Career Award

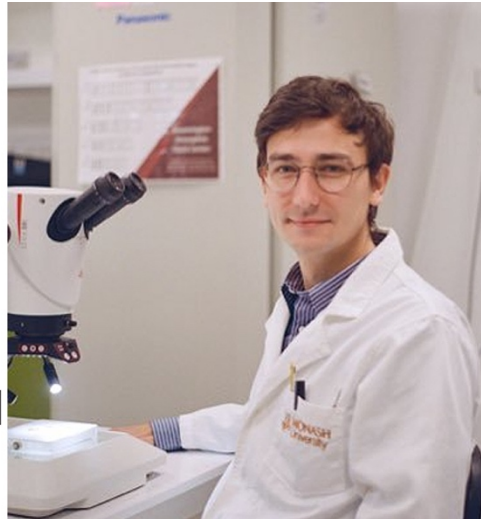
Awarded for the best oral presentation by a junior postdoctoral fellow in the field of Cell Biology or Developmental Biology. This award is named in memory of Toshiya Yamada, an internationally renowned developmental neuroscientist from the University of Queensland. Dr Yamada is known for defining molecular signals responsible for cell patterning in the developing nervous system.



ANZSCDB

is proud to present the 2022

Toshiya Yamada
Early Career Award
to Benjamin Kroeger



Congratulations to 2022 awardee **Dr Benjamin Kroeger** from the Monash Biomedicine Discovery Institute. Dr Kroeger works on hippo signalling in the laboratory of Professor Kieran Harvey. His work aims to better understand the signalling mechanisms that control cell growth and organisation in tissues.

The David Walsh Student Prize

Awarded for the best oral presentation by a student in the field of Cell Biology or Developmental Biology. This award is named after University of Sydney academic David Walsh, who worked on the role of heat shock genes and thermotolerance during early mammalian embryonic development. Learn more about David in a [tribute by Murray Smith](#).



ANZSCDB

is proud to present the 2022

David Walsh Prize
to Stephanie Rutter



Congratulations to 2022 awardee **Steph Rutter**, a first-year PhD student in Ivan Poon's Apoptotic Cell Disassembly and Clearance laboratory at the La Trobe Institute for Molecular Science. Rutter uses live cell microscopy to explore the fragmentation of dying cells during apoptosis. "My research describes a novel step that occurs during apoptosis that marks the site of cell death."

The Katharina Gaus Prize in Cell Biology

Awarded for the best poster presentation by a student in the field of Cell Biology. This award is named in memoriam after University of New South Wales academic Katharina Gaus, a prominent cell biologist who made significant contributions to the fields of immunology, membrane biology and fluorescence microscopy. Read more about Professor Gaus in Jenny Stow's [tribute article](#) (p8 ANZSCDB Newsletter Autumn 2021).



ANZSCDB

is proud to present the 2022

Katharina Gaus Prize

to Moore Zhe Chen



Congratulations to 2022 awardee **Moore Zhe Chen**, a PhD student in Angus Johnston's Nanomaterials for biology group at the Monash Institute of Pharmaceutical Sciences. Chen is working to improve the therapeutic potential of mRNA by developing lipid nanoparticle systems to target delivery to desired cells and tissues.

The Keith Dixon Prize in Developmental Biology

Awarded for the best poster presentation by a student in the field of Developmental Biology. This prize is named after Keith Dixon, an academic based at Flinders University in South Australia, who was involved in founding ANZSCDB. Dixon's work focussed on cell 'specialization' or differentiation in the germ cell lineage and intestinal epithelium in *Xenopus laevis*, including early applications of the nuclear transplantation and cloning techniques pioneered by Nobel Laureate John Gurdon.

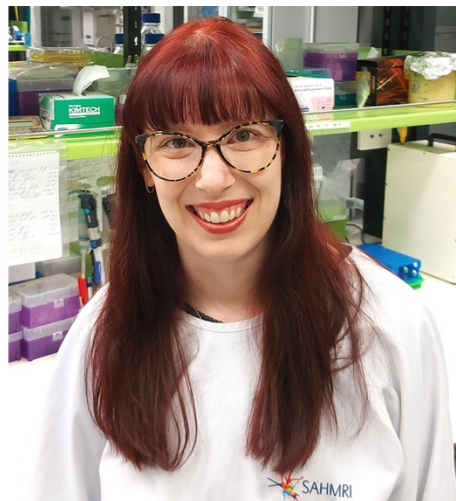


ANZSCDB

is proud to present the 2022

Keith Dixon Prize

to Ashleigh Geiger



Congratulations to 2022 awardee **Ashleigh Geiger**, a 3rd year PhD candidate in Paul Thompson's SAHMRI Genome Editing Laboratory, at the University of Adelaide. Geiger is developing therapeutic strategies for autosomal dominant Retinitis Pigmentosa based on genome engineering. Ashleigh uses CRISPR-Cas9 and Prime Editing techniques to generate preclinical cellular and animal models of this disease.

ANZSCDB ComBio Travel Awards

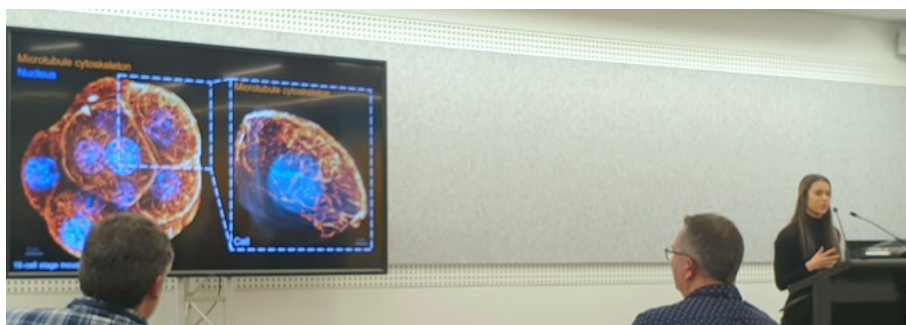
ANZSCDB offers competitive ComBio travel bursaries to Student members where their supervisor is also an ANZSCDB member.

Congratulations to:

Stephanie Rutter from La Trobe University (see David Walsh Prize above)

Azelle Hawdon from Monash University

Yunan Ye from the University of Queensland



Hawdon (left)
and Ye (below)
present at
ComBio 2022



ANZSCDB would like to thank the following poster & talk judges:

Dagmar Wilhelm, University of Melbourne

Kelly Smith, University of Melbourne

Mirana Ramialison, Murdoch Children's Research Institute

Jo Bowles, University of Queensland

Cathryn Hogarth, La Trobe University

Nathan Palpant, University of Queensland

Prajakta Kulkarni, University of Queensland

Kynan Lawlor, Murdoch Children's Research Institute

Cassy Spiller, University of Queensland

Pragathi Masamsetti, Children's Medical Research Institute

Jan Manent, Monash University

Claire Henry, University of Otago

Greg Redpath, University of New South Wales

Jieqiong Lou, University of Melbourne

Paul Gleeson, University of Melbourne

Upcoming meetings

April 17-21, 2023
Courtyard by Marriot King Kamehameha's Kona Beach Hotel
Kailua-Kona, Hawaii

Registration window:
Oct 16 - Dec 16, 2022

Abstract submission
closes on Feb 16, 2023

9th International Symposium on the Biology of Vertebrate Sex Determination

KEYNOTE SPEAKERS
Blanche Capel, Duke University Medical Center, USA
James Turner, The Crick Institute, UK

PLENARY SPEAKERS
Marie-Christine Chaboissier (University of Nice, France)
Arthur Georges (University of Canberra, Australia)
Amaury Herpin (INRA, LPGP, France)
Julie Bakker (University of Liège, Belgium)
Mike McGrew (University of Edinburgh, UK)
Takashi Yoshino (Kyushu University, Japan)
Andrew Sinclair (MCRl, Australia)
Rosier Vento-Tormo (Wellcome Sanger Institute, UK)
Ben Parrott (University of Georgia, USA)
Mónica Ballejos (University de Jaén, Spain)

TOPICS
Genetics of sex determination
Genetics of sex differentiation
Evolution of sex determination mechanisms
Epigenomic-transcriptomic regulation of sex differentiation
Sex chromosomes
Stem cells, organoid and regenerative biology
Germ cell differentiation
Differences of sex development
Differentiation of genital tracts and external genitalia
Brain dimorphism
Cutting-edge technologies
Environmental impacts on sex determination/differentiation

BIOMOLECULAR HORIZONS 2024: DISCOVER CREATE INNOVATE
22-26 SEPTEMBER 2024 MELBOURNE AUSTRALIA

ComBio 2024 MELBOURNE

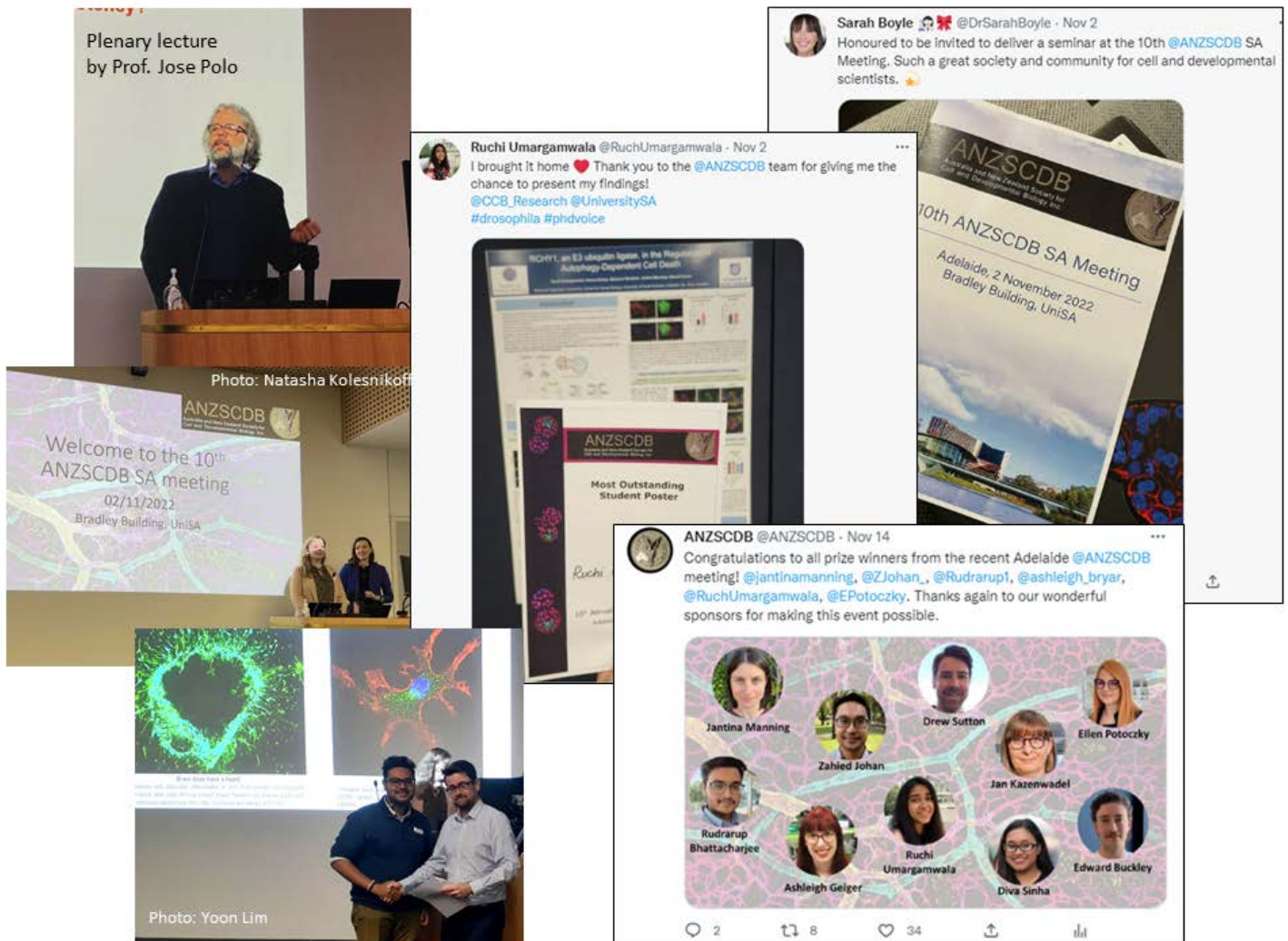
FAOBMB

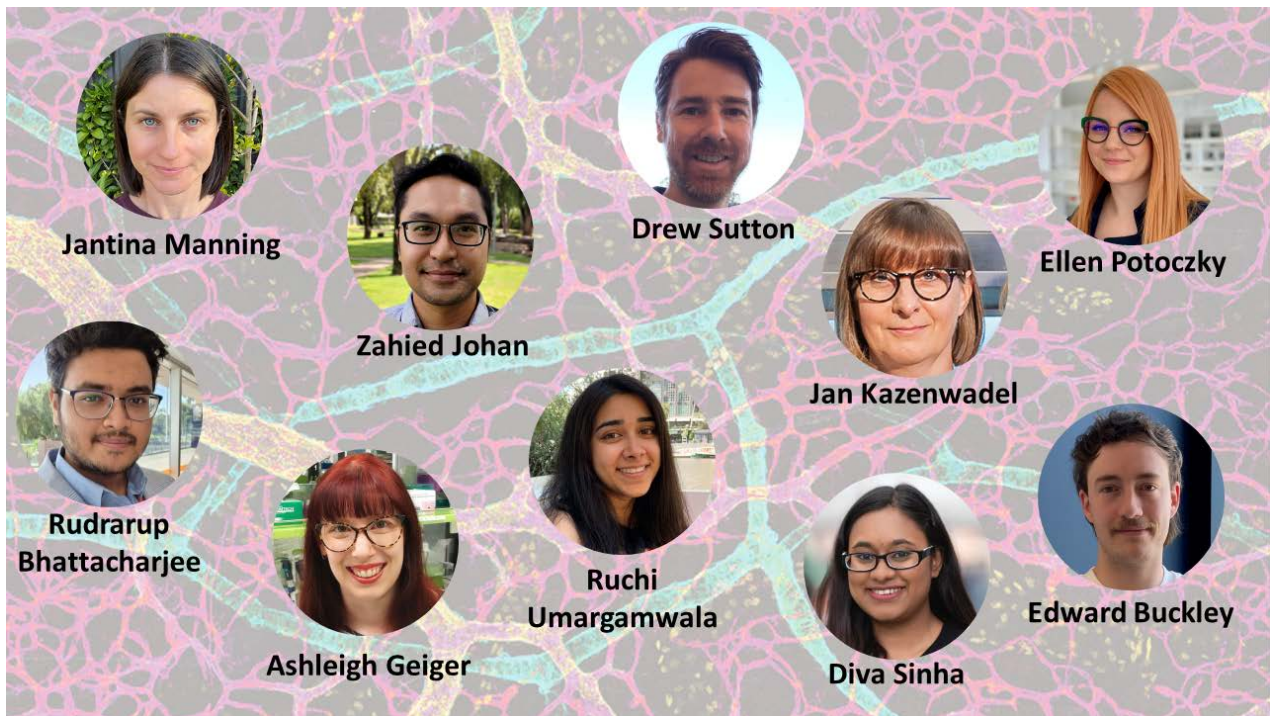
ComBio 2024 will be held as part of Biomolecular Horizons 2024, which will bring together the International Union of Biochemistry and Molecular Biology, the Federation of Asian & Oceanian Biochemists & Molecular Biologists & Australian Societies that usually contribute to ComBio, including ANZSCDB. <https://www.bmh2024.com/>

10th ANZSCDB Adelaide Meeting Report

The 10th ANZSCDB Adelaide meeting, which was held on 2 November 2022 at the Centre for Cancer Biology, UniSA, brought together >70 members of South Australian cell and developmental biology community. As in previous years, the event's program was filled with cutting-edge research and provided a fantastic opportunity for fostering local collaboration.

The day started with a great plenary presentation from the 2022 ANZSCDB President's medal winner, Professor Jose Polo (Adelaide Centre for Epigenetics, SAIGENCI, University of Adelaide and Monash University). This was followed by 8 excellent talks from our students and a special seminar presented by Dr Sarah Boyle (CCB), the 2020 ANZSCDB ECR award recipient. All talks sparked a great amount of discussion which was further boosted by 16 poster presenters showcasing their projects during lunchtime and tea breaks. Trade displays and short presentations from our sponsors were also popular and well attended. The afternoon session featured 6 outstanding talks from postdoctoral researchers as well as another amazing plenary presentation delivered by the ANZSCDB President Professor Kieran Harvey (Peter MacCallum Cancer Centre and Monash University).





All oral and poster presentations throughout the day were of outstanding quality, making it a difficult choice for our judges. We would like to congratulate all prize winners: Best Postdoctoral Oral Presentation winner Jantina Manning and Runner-Up Zahied Johan, Best Student Oral presentation winner Rudrarup Bhattacharjee and Runner-up Ashleigh Geiger, Best Postdoctoral Poster Presentation winner Drew Sutton and Runner-up Jan Kazenwadel, Best Student Poster Presentation winner Ruchi Umargamwala and Runner-up Diva Sinha and Best Research Image winner Ellen Potoczky and Runner-Ups Rudrarup Bhattacharjee and Edward Buckley (Pictured above).

The meeting was concluded by drinks and networking. Free registration, catering and multiple prizes to presenters were all possible thanks to the generous support we received from the ANZSCDB and our sponsors (Sponsor logos pictured below). We would also like to thank all plenary and featured speakers, judges, volunteers, poster presenters and CCB Operations team for their help in organising this very successful meeting.

The 10th ANZSCDB Adelaide meeting's organisation was led by the ANZSCDB SA State Representatives Dr Anna Oszmiana and Dr Yasmyn Winstanley and Dr Natasha Kolesnikoff.

Report by Anna Oszmiana

Thanks to our sponsors:



Centre for Cancer Biology Research Awards



The Centre for Cancer Biology Research Awards ceremony was held on 15 September 2022. This annual event celebrates the outstanding achievements of the CCB staff and students. We were fortunate to hear great talks from Prof. Natasha Harvey (CCB Director), Prof. Marnie Hughes-Warrington (UniSA deputy Vice-Chancellor), Adjunct Associate Prof. Julie Hartley-Jones (Statewide Clinical Support Services Group Executive Director), Prof. Frank Gannon (Director and CEO of the QIMR Berghofer Medical Research Institute) and CCB consumer advocate Tania Jolley.

This year awards went to: Natalie Foot for the Best Fundamental Research Publication, Saumya Samaraweera and Paul Wang for the Best Clinical Research Publication, Amin Zadeh Shirazi for the Best Fundamental Research Publication from a student, Naranie Shanmuganathan for the Best Clinical Research Publication from a student, Carly Whyte - Early Career Investigator award winner, Daniel Neumann - PhD thesis research excellence award winner and Anna Oszmiana - Best Research Image award winner. Congratulations to all recipients!

The awards were kindly sponsored by the CCB, ASBMB, ASI and ANZSCDB.

Report by
Anna Oszmiana

ANZSCDB SA State Representative Dr. Anna Oszmiana receiving an award for best image.
Photo: @tomekphotography



12th Queensland Cell and Developmental Biology Meeting

On the 25th of November, the Queensland arm of the ANZSCDB organized the annual Cell and Developmental Biology meeting which was held at the Queensland Brain Institute (QBI), University of Queensland (UQ). With over 115 participants including local, national and international keynote speakers it became a day full of exciting science which formed an excellent platform for fruitful collaborations and new ideas for the years ahead.

The first session was sponsored by QBI and chaired by QBI postdoc Dr Liyu Chen. The day started with a lecture from Prof Massimo Hilliard, from QBI/UQ, who explained how the expression of fusogens can lead to fusion of neurons. He discussed how fusogens and viral infections affect the nervous system which has the potential to underly many neuropathologies. Prof Hilliard's talk smoothly transitioned into the next seminar in which the viral aspect of neuroscience was further explained by Dr Giuseppe Balistreri (The University of Helsinki, Finland). Dr Balistreri presented a fascinating talk on SARS-CoV-2 infections. Using state-of-the-art imaging techniques, he described how single virions enter cells and deliver their cores into the cytoplasm, thereby elucidating which cellular factors are involved in these processes.

After a short coffee/tea break, session two was started by Dr Melanie Eckersley-Maslin from the Peter MacCallum Cancer Centre, Melbourne, who gave a wonderful talk on her cutting-edge work on epigenetic plasticity in



development and cancer. She showed how epigenetic priming factors that promote plasticity in stem cell models may be hijacked in cancers, thereby opening new ways for therapeutic interventions. Dr Melanie Eckersley-Maslin's talk was followed by two speakers; Lia Jihyeon Kim and Dr Belal Shohayeb, who were selected based on their abstracts. The session was closed by a 5-minute talk from Dr Tevin Chau who represented Nikon, one of the platinum sponsors of the meeting.

After the lunch, which was provided by St Leo's Catering, it was time for the poster session in which 26 posters were presented with great enthusiasm. The session was followed by a lecture from Prof Robert Harvey from the University of the Sunshine Coast, on the role of glycine receptors in neurodevelopmental disorders. Of note, his presentation started with a Kahoot! quiz on glycine receptors which got all attendees on the edge of their seats. After Prof Robert Harvey's talk, Jianxiong Wang and Dr. Liviu-Gabriel Bodea, both selected from abstracts, closed the session.

The final session of the day was sponsored by the Institute for Molecular Bioscience (IMB) and chaired by Dr Bageshri Nanavati. First speaker of the session was Dr Anne Lagendijk from the IMB/ UQ, who presented the first paper of her lab. Using zebrafish as a model system, she showed how the focal adhesion protein Talin plays a role in the coordination of endothelial cell remodelling. The session was closed by two speakers selected from abstracts: Leanne Jiang and Yunan Ye.



The 'scientific' part of the day was concluded by awarding prizes for best talk, poster and image, all of which were sponsored by ATA scientific. The best talk prize was awarded to Leanne Jiang (Australian Institute for Bioengineering and Nanotechnology/UQ) for her presentation titled: "Mitochondrial Dynamics are Impaired in iPSC-derived Lower Motor Neurons from Amyotrophic Lateral Sclerosis Patients". The best poster prize was awarded to Enaam Alghamdi (Diamantina Institute/UQ) for her poster titled: "cGAS accelerates mitotic cell death through the NLRP3 inflammasome", and the best image prize was awarded to Dr Belal Shohayeb (QBI/UQ). The conference was officially closed by drinks and dinner, and all invited speakers went home with a nice gift: Monopoly Brisbane edition.

We would like to thank our fellow committee members: Dr Sean Coakley (School of Biomedical Sciences/UQ), Dr Nela Durisic (QBI/UQ) and Dr Alexis Bonfim-Melo (Diamantina Institute/UQ) for their fantastic help during the organization of the event.

This event would not have been possible without the generous support of our platinum sponsors: QBI, IMB and Nikon, Gold sponsor: Sartorius and Silver sponsor: ATA scientific.

Ivar Noordstra & Merja Joensuu
Queensland State Representatives 2022



4th International Symposium on Mechanobiology – Conference Report

The 4th International Symposium on Mechanobiology was held at the Sydney Nanoscience Hub at the University of Sydney, from the 6th-9th of November 2022. Originally slated for November 2020, it was a long overdue meeting of some of the brightest minds in mechanobiology in Australia and worldwide, with researchers from the US, Singapore, Europe, UK and more. The core organising committee consisted largely of members of the Australian Society for Mechanobiology who did an astounding job at putting together a conference with a mix of plenary, keynote, invited and selected speakers, flash talks, as well as almost 90 poster presenters, with a well-attended proportion of ECR and student delegates.



Plenary and keynote seminars were all-encompassing, detailing many years of exemplary work. These provided great context for the shorter invited and selected talks that detailed largely unpublished, exciting new findings. The diverse program included presentations on the extracellular matrix, mechanosensing, mechanotransduction signalling, mechanical memory, the characterisation and electrophysiology of mechanosensitive ion channels, cell polarity, and migration and invasion as controlled by the cytoskeleton. What is clear is that mechanobiology is at the forefront of fundamental research – how cells respond to physical stimuli and the outcomes for development and disease.

Furthermore, updates were given on innovative imaging systems, cutting-edge tissue engineering techniques for three-dimensional cell and tissue culture, and recent advances in applying mechanical force/stimulus, measuring force exerted, and measuring cell, tissue and matrix stiffness. This therefore provided the perfect opportunity to learn about new developments and form collaborations.

The lively poster session on Day 2 was particularly enjoyable, with great discussions and a fantastic opportunity to network over a few drinks and canapes with other like-minded researchers who had been waiting years to catch-up in person. Another highlight was the conference dinner



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Sarah Boyle speaking at the meeting
Photo: Qian Peter Su

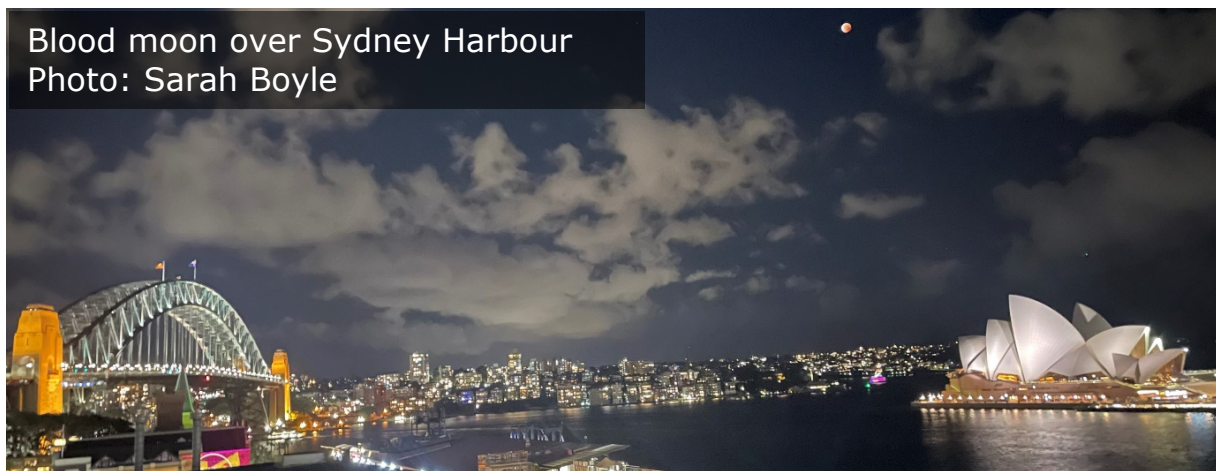
held in a function room at the top of the Museum of Contemporary Art, with a traditional smoking ceremony and amazing views of Sydney Harbour including the treat of a rare blood moon lunar eclipse.

Congratulations to the student talk and poster award winners and thank you to the organising committee and sponsors. A big thank you also to the ANZSCDB who helped support my travel through the ECR Award. I thoroughly enjoyed the Symposium and am looking forward to the next meeting.

Sarah Boyle, Research Fellow
Centre for Cancer Biology
University of South Australia and SA Pathology



Members of the ISMB 2022 Organising Committee: Arnold Lining Ju, Yu Suk Choi, Peter Su, Charles Cox, Kate Poole, Boris Martinac (chair), Maté Biro, Sara Baratchi, Xiaowei Wang and Daryan Kempe
Photo: Australian Society for Mechanobiology



Blood moon over Sydney Harbour
Photo: Sarah Boyle

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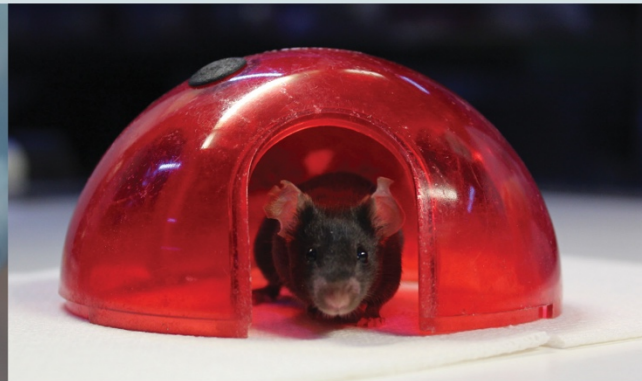
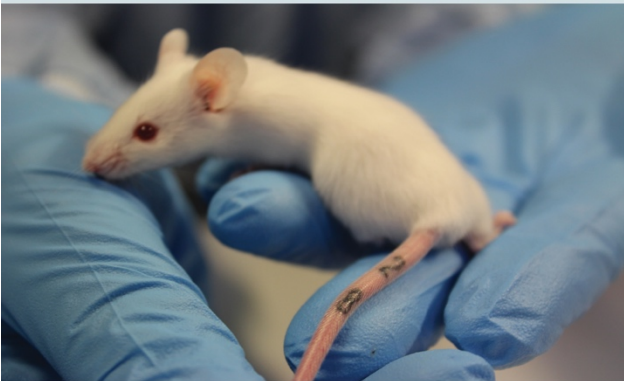


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Rapid and accurate cell counting with the CELENA[®] S Digital Imaging System



INTRODUCTION

Cell counting is an essential step in routine cell maintenance and for obtaining accurate and consistent experimental results.

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Users can select cell detection parameters to count different types of cells and the CELENA[®] S does the rest, adjusting focus and light for optimal cell detection. An image of the cells is captured, analysed, and labelled to automatically distinguish live and dead cells. Cell count and viability results appear next to the image and can be exported easily via USB.

In this study, we compared the cell counting performance of the CELENA[®] S to an automated cell counter and manual cell counting with a haemocytometer.

MATERIALS AND METHODS

Sample preparation

Series of HL-60 and HEK-293 cell suspensions with different viabilities were prepared by mixing live and dead cells. Live cells were prepared from exponentially growing cells. Dead cells were prepared by incubating an appropriate number of cells at 70°C for 30 minutes. Cells were mixed with an equal volume of 0.4% trypan blue prior to counting.

Counting Methods

A CELENA® S Digital Imaging System, LUNA-II™ Automated Cell Counter, and a Marienfeld glass haemocytometer with Neubauer counting grids were used to determine cell concentration and viability. When counting with the CELENA® S and LUNA-II™, cells were loaded into a compatible disposable slide and counted with the DEFAULT protocols of each with Autofocused Counting activated. When counting with the haemocytometer, the cells within the two corner squares of the Neubauer counting grids were counted. All experiments were performed in triplicate.

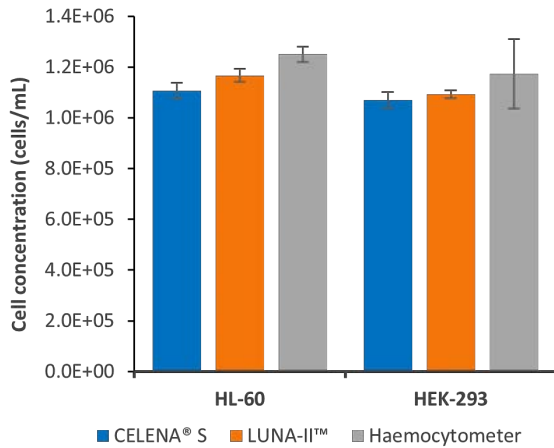


Figure 1. Comparison of three cell counting methods.

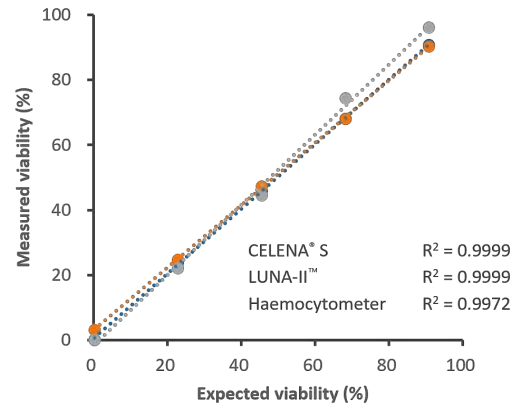


Figure 2. Linearity and accuracy of cell viability analysis using samples with different expected viabilities.

CELL COUNTING ACCURACY OF THE CELENA® S

To determine the cell counting accuracy of the CELENA® S, cell samples with a total concentration of approximately 1×10^6 cells/mL were counted with the CELENA® S, the LUNA-II™, and a haemocytometer. All three methods produced relatively similar results (Fig. 1). Haemocytometer results were slightly higher on average but more variable from count to count (Fig. 1). When assessing the accuracy of cell viability analysis, CELENA® S results showed a high degree of linearity ($R^2 > 0.999$) with the expected viabilities (Fig. 2).

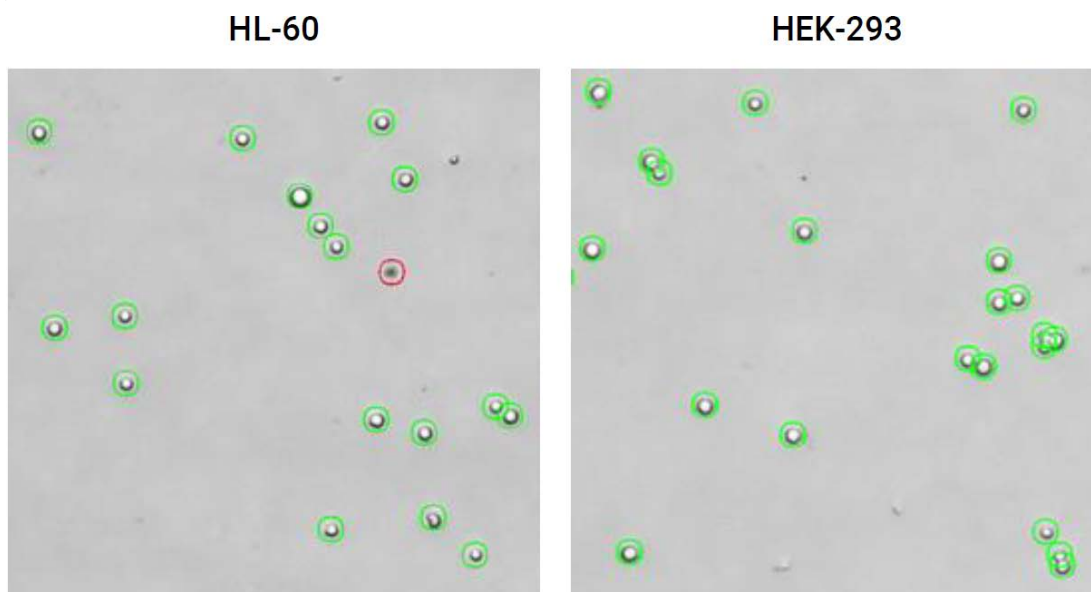


Figure 3. Cell images captured and analysed with the automated cell counting feature of the CELENA® S. Live and dead cells are labelled with green and red circles, respectively.

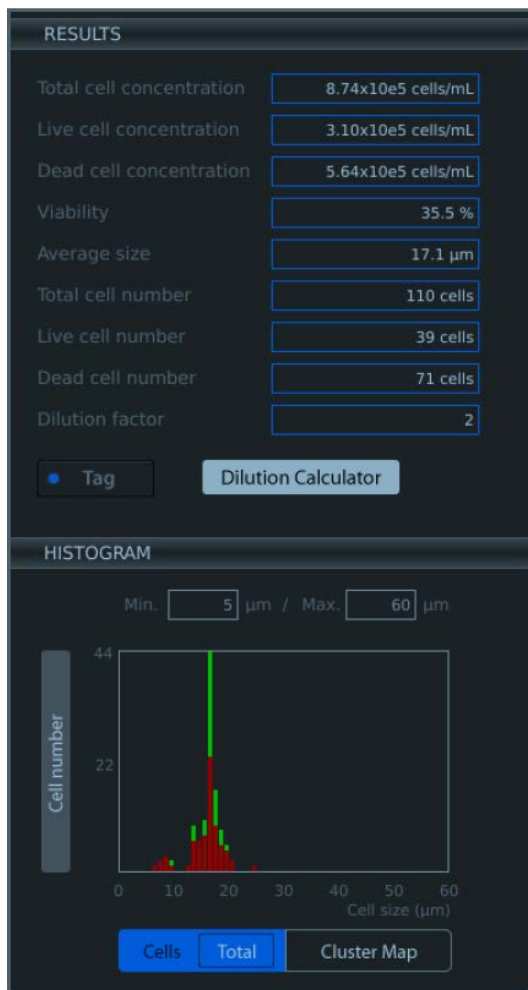


Figure 4. Cell count results on the CELENA[®]S

SUMMARY

The CELENA[®] S is a small, affordable and powerful digital imaging system that can be used for multiple applications, such as capturing and analysing multicolour fluorescence images, live cell imaging, z-stacking, and automated cell counting. The automated cell counting feature is a quick, accurate, and reliable way to count stained cells.

- **Accurate** – cell count and viability measurements
- **Consistent** – definite parameters (such as cell size and shape) used to detect cells to eliminate variability
- **Convenient** – captured images and data easily exported via USB

Reference:

1. Logosbio.com. 2022. *Rapid and accurate cell enumeration with the CELENA[®] S Digital Imaging System*. [online] Available at: https://logosbio.com/application_notes/rapid-and-accurate-cell-enumeration-with-the-celena-s-digital-imaging-system/ [Accessed 12 October 2022].

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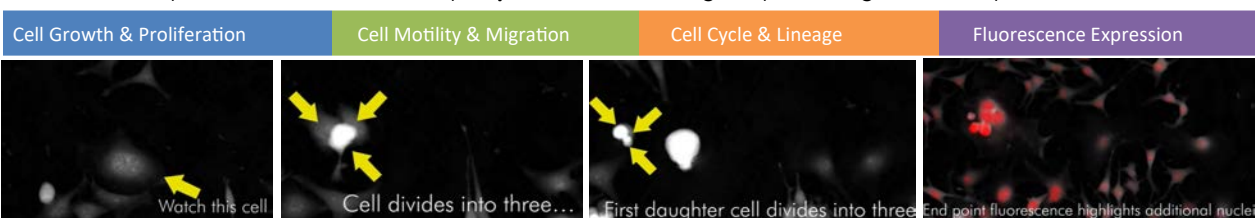
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ANZSCDB is affiliated with the International Society for Cell and Developmental Biology (ISDB).



The official journal of the International Society of Developmental Biology was founded almost half a century ago under the name of "*Cell Differentiation*", then "*Mechanisms of Development*".

The identification of developmental genes has been a successful endeavour: many developmental genes have been identified through genetics, gene comparison across species has provided new insights in evolution, and with new genetic tools we are closer to unveiling the mysteries of embryo development. Thus, the role of genes and the use of genetic tools to understand development is stronger than ever, and this journal will continue publishing papers using those approaches in the future.

Moving forward, this journal will open its pages to the study of the *cell* and its role in *development*, and to reflect this change it will be renamed "*Cells & Development*". New microscopy and imaging techniques, together with interdisciplinary advances such as mechanobiology, synthetic biology and theoretical biology will contribute to our understanding of the cellular basis of developmental biology. However, cell biology stands on its own and this journal will welcome *cell biology* studies that are not necessarily related to developmental biology. It is recognized that the boundaries between these disciplines has become blurred and there is much to learn from their interaction; in addition, both have become more quantitative, and therefore, *quantitative biology* papers will be an important addition to our journal. To reflect these changes, a subtitle has been added: *Cell and Developmental Biology and their Quantitative Approaches*.


It is the hope of C&D that this half-centennial journal will be become a forum for interdisciplinary research that combines biology, physics and mathematics to understand how a cell works and how a single cell, the egg, develops into an embryo.

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