ANZSCDB
Newsletter
Australia and New Zealand Society for Cell and Developmental Biology INCORPORATED
Winter 2013

Read Up On:

President's Report

Welcome to the mid year issue of the ANZSCDB newsletter, my last as President and time to reflect on the activities and state of the society as we head to the hand over to the next President, Carol Wicking this September at COMBIO in Perth. The last two years have seen the implementation of a number of changes and new initiatives, as well as the consolidation of the many excellent activities set in place by previous executive teams. After an analysis of the society's needs and the different possibilities available to us for running of the society's secretariat we transitioned smoothly to a new secretariat early this year. ASN Events will now be running the society's secretariat and in parallel we have also revamped the society's web site and updated it. A big thankyou goes to Maree Overall and her team at ASN for coordinating the transition so effectively. I also wish to acknowledge the efforts of Magic Touch, and Ros Barrett-Lennard and Keith Stanley for all their dedication over the years running the society's secretariat, which has put the society on a professional footing.

We have also cemented our sponsorship arrangements with Sigma for the President's Medal and Zeiss Inc for the ANZSCDB Young Investigator Award. We are most grateful to both these companies for their continued support of our elite scientists; the very worthy winners of these two prizes are announced below. I am also pleased to announce in this issue of the newsletter the awarding of the inaugural ANZSCDB Leica PhD Student International Travel Award. This award is made to a student in his or her last two years of their PhD for travel to an international meeting and is made possible by the generous support of Leica.

It is important to the society to attract and maintain corporate sponsors and it is a good sign that this support is growing.

The increase in corporate sponsorship and the sterling efforts of our "Uber Treasurer" Kieran Harvey have lead to the society's budget returning to surplus for the first time in many a budget cycle. Collectively the executive has worked hard to reduce the costs of running the society while maintaining the many excellent

Continued from Page 1

activities that ANZSCDB has traditionally underwritten. Working with the society's finances is a difficult task as income is unpredictable, both in amount and in timing. Kieran has worked tirelessly to place the finances of the society on firm footing, increase transparency and good accounting practices and hand over the accounts in a great position. My many thanks go to Kieran for work above and beyond the call of duty and acting so professionally during his time as treasurer. An enormous thankyou also must go to Ian Smyth as the Society's secretary. Ian has taken on a large proportion of the day to day running of the society's activities, masterfully coordinating the society's communications and has ensured all runs smoothly liaising very effectively with the new secretariat. He has been tireless in promoting the society's activities around the country. Collectively, this has been a very effective triumvirate and the increased responsibility of both the Secretary's and Treasurer's role has meant that the society runs much more effectively and has the added benefit of ensuring the President is in a much healthier mental state. This September sees the end of a three year stint for both Ian and Kieran, compared to the normal two year term due to staggered hand over that was experimented with the last hand over. I think all will agree a large debt of thanks is owed to them both.

I wish also to acknowledge the efforts of our newsletter editor Fiona Wylie. Fiona has done a great job on the newsletter, coming to grips with the difficult template, varied content and coordination of submissions. Fiona has maintained the professional feel of the newsletter, generated during the last executive, in a cost effective manner. It has been a valuable resource for both communication and corporate fund raising so many thanks to Fiona.

President's Medal

I, of course, also want to thank the other members of the executive for their help over the last two years. The immediate past President Edna Hardeman and President elect Carol Wicking have been indefatigable with responding to my many emails. I also wish to acknowledge the efforts of the "Grey Beards" of the ANZSCDB committee, whose corporate memory and input to the judging of the society's awards have been invaluable. This committee, initiated by the Edna Hardeman, has been a valuable and important resource for the Society.

It has already been a busy year of activities and meetings for the society, and we round up some of the activities that have occurred and highlight upcoming meetings and society related events. In this issue we take some time to celebrate the achievements of one of the senior members of the ANZSCDB community, Anne Voss who has recently been made head of the Development and Cancer division at the Walter and Elisa Hall Institute, a considerable achievement. Having Developmental Biology so formally acknowledged as a central research theme at the WEHI provides excellent visibility for the discipline. In this issue we also preview COMBIO in Perth and celebrate the awarding of the society's top awards for 2013.

In this issue we also are lucky to have Prof. Melissa Little provide us with a summary of the findings of the McKeon review in our "Opinion" section. The McKeon review panel, of which Melissa was a member, has handed down recommendations that are set to shape the future of Government

support for health and medical research across the next decade. In a high considered and informative opinion piece Melissa explains the thinking behind the reviews recommendations and their possible repercussions. It is essential reading for any Health and Medical Research professional.

State/NZ Chapter Activities

A real effort has been placed on trying to build the activity of the society locally through the use of the society's state and territory representatives. The society's local reps play an extremely important role in coordinating and delivering the "grass roots" activities of the society. Regional meetings are the real focus and it is pleasing to see the four stand-alone meetings in Victoria, NSW Queensland and South Australia going so well. These meetings provide a real chance for post docs and students to strut their stuff and get noticed locally. We are very happy to support these initiatives with the increased funding for the yearly state meetings allowing the invitation of interstate speakers, which have proved a draw card for these meetings. In the next few weeks we will be calling for new representatives. Each year one of the state/NZ representatives steps down and we are now calling for nominations for keen and engaged new representatives. This opportunity is an excellent way to engage with your peers, to advance and promote wider interest in our field and to serve ANZSCDB. It also provides the chance to "tick the box" on society and committee involvement for your CV come grant and fellowship time. Please contact me or the Secretary if you are interested in being a local society Rep.

COMBIO2013

COMBIO, our annual meeting, will be held in Perth at the Perth Convention Centre 29th Sep to 3rd Oct. International speakers that have been confirmed for the meeting so far include:

- **Anna Amtmann**, University of Glasgow, UK
- **Gabriele Bergers**, University of California, San Francisco, USA
- **Aaron Gitler,** Stanford University, USA
- **Grahame Hardie**, University of Dundee, UK
- **Matthias Hentze**, European Molecular Biology Laboratory, Heidelberg, Germany
- **Philip Ingham**, A*Star, Singapore
- **Lynne Maquat**, University of Rochester, USA
- **Gerry Melino**, MRC Toxicology Unit, University of Leicester, UK
- **Elizabeth Miller**, Columbia University, USA
- **Pura Muñoz-Cànoves**, Universitat Pompeu Fabra, Spain
- **Kiyoshi Nagai**, MRC Laboratory of Molecular Biology, Cambridge, UK
- **Keiichi Namba**, Osaka University, Japan
- **Rafael Oliveira**, State University of Campinas, Brazil
- **Christine Raines**, University of Essex, UK
- **Leonid Sazanov**, Medical Research Council Mitochondrial Biology Unit, United Kingdom
- **Gabriel Silva**, University of California, San Diego, USA
- **Mark Stitt**, Max Planck Institute for Molecular Plant Physiology, Golm, Germany

As you can see there is a strong array of international speakers in the area of cell and developmental biology. Well done to the organizers and stream coordinators for pulling together a strong plenary and symposia program. If you have not registered, do so! I look forward to seeing you all at COMBIO.

Announcement of Awards

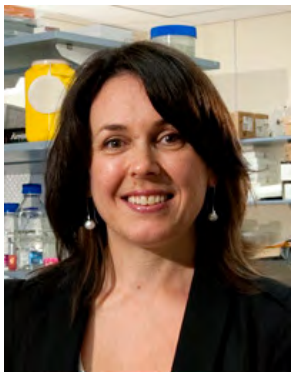
It is a great pleasure to announce the awarding of the society's two awards, the President's Medal and the ANZSCDB Young Investigator Award.

The President's Medal is the highest honour that the society bestows on its most highly acclaimed members and this year's highly worthy winner is Prof Alpha Yap.

Alpha is Head of the Molecular Cell Biology Division at the IMB, which is arguably the country's most acclaimed Cell Biology hub. Alpha has made seminal contributions to understanding the molecular pathways involved in coordinating cell adhesion, with specific

emphasis on Cadherin-mediated adhesion. He is a highly acclaimed researcher with numerous high profile papers in top journals, A full account of Alpha's research contributions will appear in the December Newsletter as part of the annual COMBIO round-up and Alpha will present a retrospective of his career in research and hopefully, a view of things to come in the ANZSCDB President's Medal Plenary lecture at ComBio2013. I warmly congratulate Prof Yap on his award.

The ANZSCDB Young Investigator Award recognises the up-and-coming leaders in the discipline of Cell and Developmental Biology. The aim of the YIA is to draw attention to the achievements of our best and brightest and provide a bit of a leg up in the tough funding milieu that we all face. This year's winner is Dr Natasha Harvey.



Natasha is Head of the Lymphatic Development Laboratory within the Division of Haematology at the Centre for Cancer Biology in Adelaide. She has also been awarded Young Tall Poppy Science Award and a National Heart Foundation Career Development Fellowship. Her research is centered on understanding how the growth and development of lymphatic vessels is controlled during embryonic development and in disease states. Natasha has also been an active member of the society acting as a SA representative of ANZSCDB. We look forward to her talk and congratulate her on her achievements.

I am also very pleased to announce that the inaugural ANZSCDB Leica PhD Student International Travel Award has been awarded to Cesar Canales Martinez from the School of Medical Sciences SOMS, University of New South Wales to attend the American Society of Human Genetics meeting. Well done to Cesar and many thanks again to Leica for the support of our young scientists"

Membership Issues

Membership remains a central focus of the ANZSCDB executive and growing the membership remains the most effective way of building the society's influence and strengthening its ability to advance the discipline of cell and developmental biology. I urge everyone to try and help with this issue and become an advocate for the society. Membership does have its privileges! Travel support to COMBIO for PhD students and eligibility for the society's prizes are dependent on individuals being active members of the society. As always new members and renewals can join online at http://www.anzscdb.org/ANZSCDB-Membership.html.

Play MYSTy for me

Fiona Wylie

Regulating gene expression is absolutely crucial to life as we know it, from development to death, for health and disease… and for eukaryotic beings such as ourselves, modifying chromatin at the level of the histone is a key part of this regulation. For Melbourne scientist Anne Voss, it is also her research bread and butter.

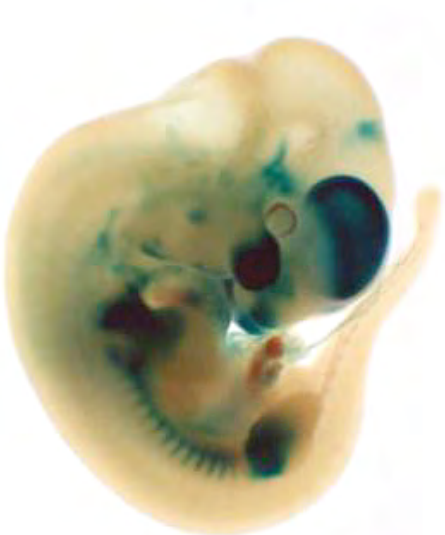
In big picture terms, Voss and her team at the Walter and Eliza Hall Institute of Medical Research Institute are interested in "how the balance between proliferation and differentiation of stem cells is maintained." More specifically, together with co-lab head Dr Tim Thomas, Voss investigates mechanisms of transcriptional regulation involving chromatin modification in the developing embryo, adult stem cells and cancer. It is really only in the past decade that the consequences of the chromatin state are starting to be deciphered at the molecular and cellular level, and as Voss adds, "the effects of chromatin state on transcription is a cutting-edge area in science."

In this space, Voss has concentrated on the MYST family of histone acetyltransferases, which are important in many aspects of cellular function, particularly growth and development, and on the flipside, MYST mutations have been implicated in pathological conditions such as cancer. "This family is defined by a highly conserved acetyltransferase domain, the MYST domain" said Voss. "There are five MYST-family members and together they represent 30% of the mammalian genome's ability to regulate gene expression and chromatin conformation by acetylation. This is the largest but, until recently, one of the least well-studied families of histone acetyltransferases. Our group has made conditional and conventional mutant mouse strains for all five family members and we have reported roles for four of them in development. We have also reported, in collaboration with human geneticists, mutations in one of the MYST family members that lead to intellectual disability syndromes."

Meeting the family

It was an undergraduate subject in embryology that first sparked Voss's interest in development and genetics while studying in Hannover, Germany in the 1980s. So, after graduating in Veterinary Medicine, Voss decided on a research path and continued in Hannover to complete her PhD, making transgenic mice to look at steroid hormone-regulated gene expression. She continued this work as a postdoc at the prestigious Cornell University in the USA where she worked on steroid-regulated mechanisms in ovarian development under the expert tutelage of Dr Joanne Fortune. Indeed, Voss credits Fortune as a strong role model for her own research style and principles. "She taught me how to give a project the level of attention that it needs to come to fruition – through careful experimentation and careful observation. I think many good projects are lost by giving up too quickly when one technique or approach doesn't work – with the risk of missing what is really happening. I also learnt a lot from Joanne's supervision style that I try to apply in my own group." And indeed, she does it with great success according to those around her. Final-year PhD student, Hannah Vanyai describes Voss as "a wonderful supervisor who always has an 'open door' policy despite the myriad demands on her time," while fellow WEHI group leader and long-time collaborator, Andreas Strasser admires the consistent quality, independence and creative thinking of all PhD students supervised by Voss.

After her stint at Cornell, Voss returned to Germany for a second postdoctoral fellowship at the Max Planck Institute for Biophysical Chemistry in Goettingen with Professor Peter Gruss, a very distinguished developmental biologist and currently the President of the Max Planck Society. It was in Goettingen that Anne first met the MYST family, as well as her future collaborator and partner Tim Thomas. "We conducted a screen for genes important in cerebral cortex development and one of the hits turned out to be the murine homologue of MYST4 (KAT6B)." They called the mouse gene Querkopf (Qkf), which means "square head", because that is what the mice looked like (embryo shown above [*Frontiers Biosci 2004;9,24*]), and showed that it is required for normal brain development (Development, 2000). So, Voss

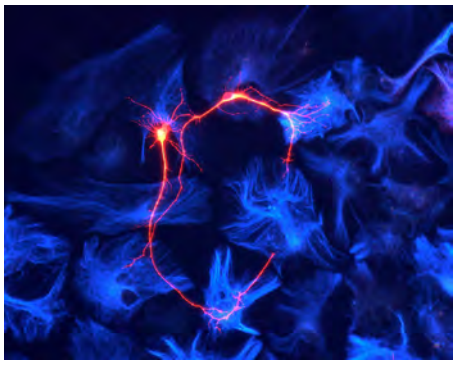


and her team started working full steam ahead on the role of MYST4 in neural development. They found expression of the gene in neurogenic regions of the adult brain, and in 2006 (J Neuroscience) published the importance of Qkf gene expression in neural stem cell establishment and renewal.

Mouse translating the human condition

Subsequent collaborations with several human geneticists using Voss's MYST4 mouse model have revealed important functions for this family member in histone modifications, in mammalian development and in possible pathogenic mechanisms in humans and mice. One such collaboration involved Christian Thiel's group at the University of Erlangen in Germany who were studying a child showing a mutation in one of his two MYST4 gene alleles. "Christian asked us to collaborate by doing mouse experiments, and with the results from this one individual, we showed the first loss-of-function mutation for MYST4 in humans (published in J Clin Invest, 2011). The other collaboration was with Jill Clayton-Smith's group at the University of Manchester in the UK. "They had done whole-exome sequencing on a large collection of patients suffering from a multi-system developmental disorder characterised by severe intellectual disability called Say-Barber-Biesecker-Young-Simpson syndrome, all of which had a heterozygous mutation in MYST4", said Voss. "This finding showed that MYST4 gene dosage is limiting for development in the brain. So, we performed further mouse experiments to mirror these patients and together published that study (Am J Hum Genetics, 2011).

According to Voss, the fascinating thing revealed by their studies, and similar ones from other groups in the following year, is that varied mutations across this large multi-domain MYST4 protein can cause a range of functional abnormalities classified into distinct syndromes. "So, affecting different parts of MYST4 causes different phenotypic outcomes that have overlapping features. All of the syndromes include intellectual disabilities, but then each have other features of which some overlap such as facial dysmorphogenesis… and in most cases, exactly how the MYST4 mutation is causing these different features remains unknown."



MOZ joins the party

In 2000, about the same time as setting up their lab at WEHI, Voss and Thomas also started working on another of the MYST family, called MOZ (or MYST3 or KAT6A), which is also a large protein and has the same domain structure as MYST4. Again, they made mutant mice, but this time with a focus on the haematopoietic system because MOZ (monocytic leukaemia zinc finger protein) was originally identified as mutated in translocations causing acute myeloid leukaemia. "The mouse experiments showed that without MOZ, transplantable haematopoietic stem cells did not develop, placing the normal role of this gene in establishing stem cell identity" (Genes and Development, 2006).

Further work with the MOZ mutant mice yielded another important paper in 2009 (published in Developmental Cell), revealing a central role for the MOZ gene in development. "Our mouse embryos showed a complete and extensive mis-specification of body segmentation in the form of an anterior homeotic transformation affecting 19 body segments," said Voss. "This suggested that MOZ is required for Hox gene activity, and probably for almost all Hox genes. We then looked at the chromatin around Hox gene loci and found that acetylation of a particular histone lysine residue at those sites requires MOZ." This was the first reported link between a specific chromatin modifier and a specific chromatin modification with a functional outcome in a multicellular organism. "This sort of sequence of molecular events had been studied before in yeast, but not in mice."

More recently, Voss and her team also noticed that the MOZ mutant mice, which are very yielding of results according to Voss, show another set of defects reminiscent of DiGeorge syndrome in humans. Further experimentation indeed revealed that MOZ functionally affects the major gene involved in this syndrome, Tbx1 (Developmental Cell, 2012). "The interesting thing about DiGeorge syndrome is the surprising degree of variability amongst affected individuals - patients with exactly the same deletion can have either a very severe heart and aortic arch defect that requires surgery at birth to survive or they can have no defect at all (even in pairs of monozygotic twins). So, genetically identical individuals can show major phenotypic differences…and we think that the defect severity correlates with the levels of Tbx1 mRNA and protein." So, coming back to MOZ – the team was able to show that if this chromatin modifier is not present in sufficient amounts, the organism becomes highly sensitive to an environmental insult, causing congenital birth defects.

Adding to the family album

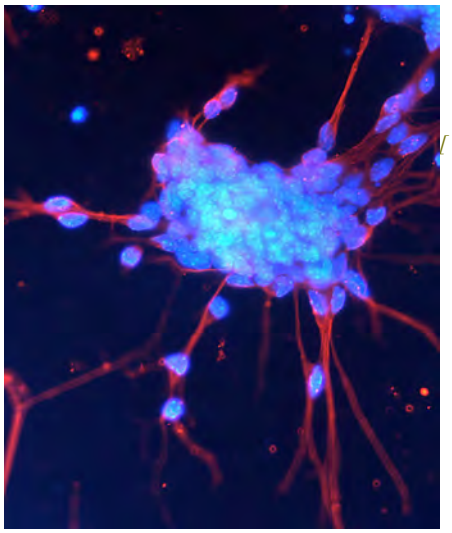
According to Voss, the group is now in a unique position due to their finding that, unlike previously thought for any histone acetyltransferase, each MYST family protein has a very surprising specificity for just one

histone lysine residue. "Thus, we can ask not just what a particular lysine acetyltransferase does to gene transcription at the relevant gene loci and to other local chromatin modifications, but also what roles do these individual histone modifications play. These are the sorts of questions that yeast people have been able to resolve, because yeast do not have multiple histone genes, so mutating one histone residue could reveal what it does in the whole organism. In mammals, this was not possible, but now we can ask these types of questions and we have a number of projects ongoing in that direction."

Voss and Thomas have also started investigating what the MYST family does in cancer, and know already that this will keep them busy for some time to come. "We started with the haematopoietic-based cancers, but also plan to look at epithelial cancers, because two MYST proteins are highly expressed in epithelial tumours," said Voss. In that context, Thomas and Voss are also conducting a program to develop small-molecule inhibitors of MYST proteins, in collaboration with the Cancer Therapeutics Co-operative Research Centre.

Not wasting a moment

Voss had no hesitation listing off several 'favourites' about her job. "Firstly, being an independent scientist allows me to be self-directed and pursue questions that really interest me, which is incredibly satisfying." Secondly, although her moments at the bench are rare, Voss still feels that thrill when an experiment comes off. "For example, when I look at one of our new mouse mutants and know I am the first person anywhere to see why a particular gene or protein is important. Then, at a more advanced stage of a project, it is satisfying to see a good project being completed because then you see this large amount of work and pieces of information falling into place to form a new and meaningful concept." According to Strasser, Voss makes this tough journey from question to concept look easy and enjoyable. "Anne is an outstandingly creative, knowledgeable and passionate scientist with incredibly high standards. Her experimental work is of the highest quality and her interpretation of data always very careful. Consequently, the results emerging from our collaborative studies are always exciting and our group meetings a highlight of the week for me!"



[Development 2008;135, 2139]

Voss also particularly relishes her role as a supervisor. "I really enjoy interacting with the brilliant young people we have in the lab – they have fantastic ideas and one of the best things is to observe the excitement in their eyes when they see something working and the project becoming more and more interesting." This enthusiasm is echoed by her group, who according to Vanyai, appreciate the way in which Voss is always open to their suggestions and ideas, and in return, provides thoughtful, constructive and thorough feedback. For those just starting out in research, Voss's general message is simple. "The single-most important thing is to work on a research question that really thrills them – this is critical to put in the hours needed to make a good project work."

At a professional level, Voss feels strongly about ensuring that policy makers, funding agencies and the public know that basic research findings such as hers will eventually inform human medicine. "For instance, the human geneticists working with these patients on Noonan and Say-Barber-Biesecker-Young-Simpson syndrome would not have suspected the role of MYST4, had it not been already implicated in mouse brain development. In this respect, Voss credits her postdoctoral mentor at the Max Planck Institute, Peter Gruss, as a strong and lasting influence. "He was a big picture, visionary person… who was also heavily involved in promoting the importance of research and the profession of science, particularly to politicians and the public. Sometimes as scientists we can remain a bit isolated and remote from the general public, but largely that is who pays for research and they deserve to be informed what happens to the funds."

The latest challenge

In July last year, Voss was appointed as Head of the brand new Division of Development and Cancer at WEHI. "It is a great challenge, but also exciting, and I am now working to recruit junior lab heads and build up our team around the theme of chromatin biology, development and cancer." Voss's newest role in WEHI is possibly best summed up by her student Vanyai. "Anne is an incredibly inspiring mentor, especially for me as a young female scientist, and it was an honour to see her dedication and contributions to science at WEHI recognised by the formation of her own Division. I am very fortunate to have such a role model." For Voss, the big quest in her field is to close the gap in knowledge and molecular specificity when going from interpreting cell-free experimental studies to cell culture experiments to the complexity of the in vivo situation. "This is what I spend most of my time really thinking about…knowing that we are not there, but really wanting to get there, especially in the areas of development and cancer."

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ComBio2013

Perth Convention and Exhibition Centre

29 September to 3 October 2013

Early Registration and Abstract Deadline:
Friday, 5 July 2013

Incorporating the annual meetings of
- Australian Society for Biochemistry and Molecular Biology
- Australian Society of Plant Scientists
- Australia and New Zealand Society for Cell and Developmental Biology

Representatives of the following societies will assist the programme committee:
- Australian Society for Stem Cell Research
- Australian Society for Microbiology

Further information:
Conference: George Yeoh
George.Yeoh@uwa.edu.au

Registration/Exhibition: Sally Jay
combio@asbmb.org.au

Themes of the conference will include:

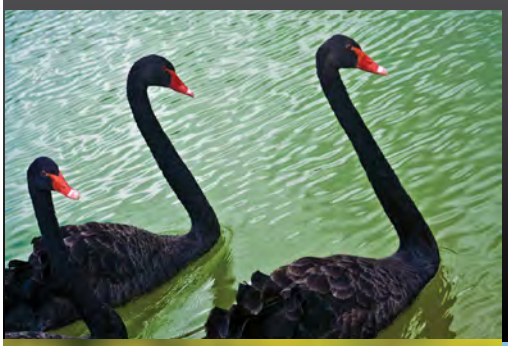
- **Cell Biology**
- **Plant Biology**
- **Plant Ecophysiology**
- **Signalling**
- **Gene Regulation**
- **Proteins**
- **Developmental Biology**
- **Regenerative Science: Future Directions**

Plenary Speakers

Confirmed Plenary Speakers at this time:

- **Anna Amtmann,** University of Glasgow, UK
- **Gabriele Bergers,** University of California, San Francisco, USA
- **Liam Dolan,** Oxford University, UK
- **Aaron Gitler,** Stanford University, USA
- **Grahame Hardie,** University of Dundee, UK
- **Matthias Hentze,** European Molecular Biology Laboratory, Heidelberg, Germany
- **Philip Ingham,** A*Star, Singapore
- **Lynne Maquat,** University of Rochester, USA
- **Gerry Melino,** MRC Toxicology Unit, University of Leicester, UK
- **Elizabeth Miller,** Columbia University, USA
- **Pura Muñoz-Cànoves,** Universitat Pompeu Fabra, Spain
- **Kiyoshi Nagai,** MRC Laboratory of Molecular Biology, Cambridge, UK
- **Keiichi Namba,** Osaka University, Japan
- **Rafael Oliveira,** State University of Campinas, Brazil
- **Linda Partridge,** Institute of Healthy Ageing, University College London, UK
- **Christine Raines,** University of Essex, UK
- **Gabriel Silva,** University of California, San Diego, USA
- **Mark Stitt,** Max Planck Institute for Molecular Plant Physiology, Golm, Germany

www.asbmb.org.au/combio2013



ComBio2013 Provisional Timetable

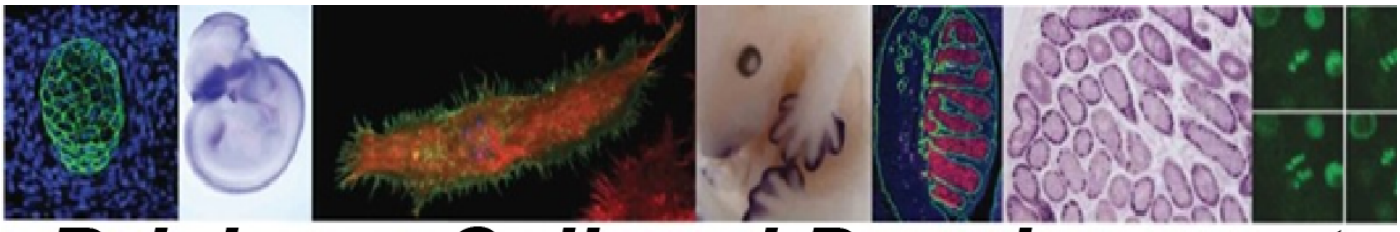
Sunday	**29 September**
15.00 - 19.00	Registration
16.00 - 18.30	Early Career Workshop

Monday	**30 September**
07.30 - 08.30	Registration
08.30 - 08.45	Conference Opening
08.45 - 09.30	Plenary 1: **Keiichi Namba;** Plenary 2: **Christine Raines**
09.35 - 10.20	Plenary 3: **International *Biochemical Society: ASBMB* Lecture: Grahame Hardie;** Plenary 4: **Pura Muñoz-Cànoves**
10.20 - 10.50	Morning Tea / Exhibition / Posters
10.50 - 12.20	Concurrent Symposia 1
12.20 - 13.20	Lunch / Exhibition / Posters
12.40 - 14.10	Education Symposium
13.20 - 14.20	**Poster Session A**
14.20 - 15.05	Plenary 5: **Lynne Maquat**
15.10 - 15.55	Plenary 6: **Aaron Gitler;** Plenary 7: ***Annals of Botany Lecture:* Rafael Oliveira**
15.55 - 16.30	Afternoon Tea / Exhibition / Posters
16.30 - 18.00	Concurrent Symposia 2
18.00 - 20.00	Welcome Mixer / Exhibition / Posters

Tuesday	**1 October**
08.30 - 09.20	Plenary 8: ***ASBMB Merck Millipore Medal Presentation and Lecture:* Jake Baum;** Plenary 9: ***ASPS Peter Goldacre Award Presentation and Lecture*: Min Chen**
09.20 - 09.30	**ASBMB Beckman Coulter Discovery Science Award Presentation, Boomerang Award Presentation, ASBMB Edman Award Presentation, and ASBMB Education Award Presentation, ASPS-FPB Best Paper Award Presentation, ASPS Teaching Award Presentation;**
09.30 - 10.20	Plenary 10: ***ASBMB Lemberg Medal Presentation and Lecture:* Sharad Kumar** Plenary 11: ***ASPS J. G. Wood Lecture:* Jim Reid**
10.20 - 10.50	Morning Tea / Exhibition / Posters
10.50 - 12.20	Concurrent Symposia 3
12.20 - 13.00	Lunch / Exhibition / Posters
13.00 - 14.00	**Poster Session B**
14.00 - 15.30	Concurrent Colloquia
15.30 - 16.00	Afternoon Tea / Exhibition / Posters
16.00 - 17.30	Concurrent Symposia 4
17.30 - 19.00	Cocktail Party / Exhibition / Posters

Wednesday	**2 October**
08.30 - 09.15	Plenary 12: **Kiyoshi Nagai;** Plenary 13: **Gerry Melino**
09.20 - 09.25	**Fred Collins Award Presentation, ASBMB 50-year Membership Presentation, ANZSCDB Young Investigator Award Presentation**
09.25 - 10.15	Plenary 14: **Matthias Hentze;** Plenary 15: ***ANZSCDB Presidents Medal Presentation and Lecture:* Alpha Yap**
10.15 - 10.45	Morning Tea / Exhibition / Posters
10.45 - 12.15	Concurrent Symposia 5
12.15 - 12.55	Lunch / Exhibition / Posters
12.15 - 13.25	Student lunch with overseas speakers
12.55 - 13.55	**Poster Session C**
13.55 - 14.40	Plenary 16: **Leo Sazanov;** Plenary 17: **TBA**
14.45 - 15.30	Plenary 18: **Elizabeth Miller;** Plenary 19: **Gabriele Bergers**
15.30 - 16.00	Afternoon Tea / Exhibition / Posters / Passport Draw
16.00- 17.30	Concurrent Symposia 6
17.35 - 18.30	Annual General Meetings
19.30 - 23.30	CONFERENCE DINNER - Perth Convention Centre

Thursday	**3 October**
09.00 - 10.30	Concurrent Symposia 7
10.30 - 11.00	Morning Tea
11.00 - 12.30	Concurrent Symposia 8
12.30 - 13.30	Lunch Break
13.30 - 14.15	Plenary 20: **Gabriel Silva;** Plenary 21: **Anna Amtmann**
14.20 - 15.05	Plenary 22: **Philip Ingham;** Plenary 23: **Mark Stitt**
15.10 - 15.40	Closing Ceremony and Award Presentations
15.45 - 16.45	Closing Drinks



Brisbane Cell and Developmental Biology Meeting

October 10
2013
8:45am - 5pm

Institute for Molecular Bioscience
The University of Queensland
St Lucia, Australia

Professor Philip Ingham
Lee Kong Chian School of Medicine,
Imperial College London/NTU, Singapore

Associate Professor Elizabeth Miller
Columbia University, USA

Dr Michelle Hill
UQ Diamantina Institute, Australia

4 postdocs and 4 PhD students will be chosen from abstracts to present a 15 minute talk: PRIZES WILL BE AWARDED TO THE BEST TALKS AND POSTERS

Registration is FREE and abstract submission is now open

Please register and submit abstracts at:
http://www.imb.uq.edu.au/cell-and-developmental-biology-meeting

Abstract submission closes Friday 31st August

Refreshments and prizes provided by our sponsors

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7th Congress of the Asian-Pacific Organization for Cell Biology to be held in Singapore next February

The Asian Pacific Organization for Cell Biology (APOCB) is a regional member of the International Federation for Cell Biology. Its mission is to foster cell biology and the Societies for Cell Biology (including the ANZSCDB) in the countries of the Asian-Pacific region. A main activity of the APOCB is hosting a Congress every four years in one of its member countries.

The 7th Congress of the APOCB, in conjunction with the American Society for Cell Biology (ASCB) Workshop on Host Pathogen Interactions, will be held at the Biopolis in Singapore on February 24-27, 2014. Featured during the Congress will be plenary sessions with talks by international speakers on "Cell biology of host-pathogen interactions", "Cell biology of diseases", "Stem cell and developmental biology", and "Emerging new cell biology technologies". Concurrent sessions and poster presentations on various cell biology areas of interest, as well as educational workshops, are also planned. Speakers for the concurrent sessions will be chosen in part from the submitted abstracts. We invite students, researchers and faculty, particularly from the Asia rim countries, to attend.

The Biopolis campus is a high-tech research hub with excellent access by bus, MRT (subway) and taxi. The Congress is organized by the Cell Biologists in Singapore at the Institute for Molecular Cell Biology (IMCB), Nanyang Technological University (NTU), National University of Singapore (NUS), and the Temasek Life Sciences Laboratory (TLL).

Further information is contained on the Congress website:

http://www.dbs.nus.edu.sg/APOCB2014/

See you in Singapore next February!

The Organizing Committee

Paul Matsudaira (National University of Singapore), Chair
Mohan Balasubramanian (Temasek Life Sciences Laboratory)
Cynthia He (National University of Singapore)
Hong Wanjin (Institute of Molecular and Cell Biology)
Liou Yih-Cherng (National University of Singapore),)
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Cynthia Jensen (University of Auckland, New Zealand), for APOCB/ASCB
David Roos (University of Pennsylvania), for ASCB
Célia R. S. Garcia (University of São Paulo, Brazil), for ASCB

2nd Meeting of Australian Network of Cardiac & Vascular Developmental Biologists

31st October - 1st November 2013

Invited Speakers:
Brian Black (USA)
Deborah Yelon (USA)

Where: Broadbeach Surf Life Saving Club on the Gold Coast, Queensland

For further details and Registration please see website: www.ancvdb2013.org

Organising committee:
Kelly Smith, Ben Hogan, Mat Francois, Enzo Porello & David Pennisi

The 14th

Hunter Meeting

Convenor: Sarah Russell

Registration http://hcbm.mtci.com.au

March 25-28, 2014

The Sebel Kirkton Park, Pokolbin, NSW, Australia

Australia's Premier Meeting of cell and developmental biologists ~ in NSW's Premium Wine-growing district

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on-Line registration ~ Close of abstract submission for oral presentation: November 15, 2013
close of Early-Bird registration: January 17, 2014
Close of abstracts for inclusion as posters in the printed program: February 22, 2014

Hunter Meeting

Co-convened by Sally Dunwoodie (Victor Chang Institute, NSW) and Jennifer Stow, (IMB, University of Queensland)

March 19-22, 2013, The Sebel-Kirkton Park, Hunter Valley, NSW, Australia

In mid-March, members of the cell and developmental biology communities came together again under the sunny skies of the Hunter valley for the annual Hunter Meeting.

The regular meeting symposia were preceded by a day of imaging presentations at the **6th Pre-conference Imaging workshop**, chaired across three session themes by Rohan Teasdale (High- and Super-resolution microscopy), Will Hughes (Emerging techniques) and Jenny Stow (Quantitative imaging). New approaches to quantitative imaging and image analysis were featured throughout the sessions, most illustratively in the EMBO-sponsored keynote presentation by Marcos Gonzalez-Gaitan from the University of Geneva who spoke on Imaging of endosomes in asymmetric division. Representatives of major imaging technologies (Leica and Zeiss) were on hand to display and discuss latest equipment and software.

The opening session on **High- and Super-resolution microscopy** featured Fred Meunier (QBI, Brisbane) speaking on Myosin VI: molecular grabbing claw, Samantha Stehbens (UCSF, USA) with From the inside-out: How the microtubule +TIP, CLASP, mediates localized exocytosis to control extracellular matrix degradation and focal adhesion turnover, and then Sarah Russell (PeterMac, Melbourne) on Using super-resolution to elucidate signalling in cancer and immunity.

Session 2 covered **Emerging techniques** with four speakers covering a range of 'vital' imaging applications in cell biology and development, as follows. Andrius Masedunskas (UNSW, Sydney); Imaging the dynamics of the actin cytoskeleton during exocytosis in live rodents by intravital microscopy, Michael Samuel (Centre for Cancer Biology, Adelaide); Imaging approaches to studying the tumour microenvironment, Alex Combes (IMB, Brisbane); Quantitation and modelling of the nephron progenitor population during kidney development, and Paul Timpson (Garvan, Sydney); Visualizing drug targeting efficacy in live tumors using flim-fret intravital imaging. The session finished off with an informative presentation by Daniel Koch, the Super-resolution Application Specialist from Carl Zeiss Microscopy, Singapore.

In the final **Quantitative imaging** session, James Burchfield (Garvan, Sydney) followed the keynote talk to present his work on Insulin Action, and finally, Danny Hatters (Bio21, Melbourne) presented New tricks with flow cytometry to probe protein conformation and localization in cells.

The workshop finished with Nic Latouche presenting some of the latest and greatest in imaging from Leica Microsystems.

The Main Event

Following the Imaging workshop, the conference proper kicked off in the now-traditional manner with a "BAR-B-Q Under the Stars" Welcome Reception, followed by The **Keith Stanley Lecture**, chaired by Jenny Stow and presented by Fred Maxfield of Weill Cornell Medical College, New York who entertained the audience with Endosomal pathways and multiphoton microscopy in the evaluation of cholesterol trafficking. Attendees finished off their first evening with

a late session of posters and sponsor exhibits accompanied by local wine and cheese tasting.

The **main symposia** had an excellent mix of overseas and local speakers with an emphasis on young investigators presenting their work.

The opening session on **Phospholipids** was chaired by Paul Gleeson and featured Sergio Grinstein (Hospital for Sick Kids, Ontario) whose Zeiss-supported presentation covered Phosphatidylserine polarization and development of cell polarity, and Howard Riezman (Uni Geneva, Switzerland) who spoke on Yeast as a model system for studying lipid homeostasis and function. Next speaking was Robert Yang (UNSW, Sydney); The role of phosphatidic acid in the fomation of supersized lipid droplets and adipocyte development, Neale Ridgeway (Dalhousie University, Nova Scotia); Sterol-dependent regulation of Sac1 and phosphatidylinositol 4-phosphate in the Golgi apparatus by oxysterol binding protein, and Olga Sukocheva (Flinders Uni, Adelaide); Estrogen defines the dynamic and destination of transactivated EGF receptor in breast cancer cells: role of S1P3 receptor and Cdc42.

Stem cells, chaired by Paul Thomas, was led off with an invited talk by Wieland Huttner (MPI, Dresden) who spoke on Neural stem and progenitor cells and the evolution of the cerebral cortex. This was followed by Martin Pera (Stem Cells Australia, Melbourne); Embryonic stem cells, Jose Polo (Monash Uni, Melbourne); Dissecting the molecular events during reprogramming of somatic cells into induced pluripotent stem cells, Veronica Palma (University of Chile, Las Palmeras) Neogenin1 is a Sonic Hedgehog target in medulloblastoma and is necessary for cell cycle progression, and Daniel Hesselson (Garvan, Sydney) Metabolic regulation of pancreatic transdifferentiation.

After lunch, Christina Mitchell chaired the next session on **Signal Transduction** featuring Raphael Kopan (Washington University, MO) who spoke on Notch singling in the mammalian kidney. Also presenting were Kum Kum Khanna (QIMR, Brisbane); DNA damage response pathways, Robin Hobbs (ARMI, Melbourne); The mTORC1 pathway dictates fate decisions of germline progenitors, and Alex James (Victor Chang, Sydney) Notch4 is an inhibitor of canonical Notch signalling.

Day 2 ended with the **EMBO Plenary lecture for 2013.** With Sally Dunwoodie in the Chair, Marcos González-Gaitán of the University of Geneva presented a colourful journey through the Dynamics of Dpp Signaling and

Proliferation Control.
This imaging splendor was fittingly followed by Dinner in the Rose Garden and a late-night posters session amongst the sponsors exhibits and waiters bearing more local produce.

Cardiovascular Biology was the heart starter session on Day 3, chaired by Ben Hogan. It began with an invited presentation by Ralf Adams from the Max Planck Institute for Molecular Biomedicine in Münster, speaking about Regulation of endothelial cell behavior in growing blood vessels. Steven Stacker (Ludwig, Melbourne) A genome-wide approach to understand the signalling networks of lymphatic endothelial cells, Kelly Smith (IMB, Brisbane); Tmem2 plays diverse roles in cardiovascular development, Natasha Harvey (Centre for Cancer Biology, Adelaide); Defining the role of the Nedd4 ubiquitin ligase during vascular morphogenesis in the mouse embryo, Jenny Gamble (Centenary Institute, Sydney);

Control of angiogenesis: The RhoGAP, ARHGAP18, stabilises cell junctions and limits angiogenesis.

The **Differentiation and morphogenesis** session chaired by Helena Richardson, featured Fumio Matsuzaki, RIKEN-Centre for Developmental Biology, Kobe Mammalian neurogenesis; Louise Cheng Organ growth during nutrient restriction in Drosophila, Ruth Arkell (ANU, Canberra); SUMOylation is critical for Zic5 function in vitro and in vivo, David Loebel (CMRI, Sydney); Tissue-specific and common functions of Twist1, Edwina McGlinn (EMBL Australia, ARMI, Melbourne); Lineage specific regulation of Hox networks by microRNAs.

The final symposia session on **Bioarchitecture and Vesicle Trafficking** was chaired by Sarah Russell and featured talks from Peter Gunning (UNSW, Sydney); Regulation of the MAPK pathway by tropomyosin and development of anti-tropomyosin drugs as therapeutics, Carol Wicking (IMB, Brisbane); The role of the cilium in signalling and disease, Stephen Wood (Griffith Uni, Brisbane); DUB regulation of neural progenitor adhesion, polarity and proliferation. Vladimir Sytnyk (UNSW, Sydney); NCAM2-mediated synaptic adhesion in the maintenance of glutamatergic synapses, and Lorey Smith (PeterMac, Melbourne); Tumour Suppression via Re-equilibration

of Cell Polarity Networks. Finally, the **ANZSCDB plenary lecturer,** sponsored by the ANZSCDB and introduced on behalf of the society by President-elect Carol Wicking, was Didier Stainier of the Max Planck Institute for Heart and Lung Research, Germany who presented his latest findings on development in zebrafish.

During evenings, lunchtimes and afternoons, the joint poster sessions/trade displays were as popular as ever, heavily attended and a hive of activity. The Cellular Biology Meeting Inc is grateful to our continuing sponsors, the ANZSCDB and EMBO for major Plenary Lecture support and to our Exhibitors and Workshop sponsors.

On the final night, conference attendees headed off to nearby Tamburlaine Winery Members' Lodge, Pokolbin, for a sumptuous dinner and entertaining talk on the wines by industry specialist, Mark Davidson

Sponsors:

ANZSCDB – The Australasian Society for Cell and Developmental Biology; **EMBO** – The European Biology Organisation

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JULY, 2013

17th ISDB Meeting

The 17th meeting of the international society for developmental biology was recently held in Cancun, Mexico. A curious place consisting of approximately 20km of beachfront lined with high-rise hotels. Not everyone's cup of tea, however, those who prefer a less differentiated environment would be pleased to know that I saw fresh turtle tracks on the beach in front of my hotel every morning and the frigate birds using the updraft created by the hotels conveyed a touch of nature even in this environment.

Congress Dinner

As befits our major international meeting, there were three concurrent sessions over five days and a satellite symposium: Making and Breaking the Left-Right Axis: Laterality in Development and Disease. All in all there were over 150 oral presentations and a total of approximately 600 abstracts were submitted. A very full program, although the attendance was less than the organizers had expected presumably due to many laboratories experiencing tighter budgets in recent years.

The EMBO lecture was given by Elliot Meyerowitz, who showed a series of elegant studies describing how the relationship between mechanical stress and auxins during the growth of flowering plants can lead to characteristic patterns in the arrangement of leaves and flowers. The first plenary session included John Gurdon who gave a very comprehensive overview of nuclear reprogramming and the current state of the field, this was followed by Angela Nieto discussed recent work on the regulation of epithelial-mesenchymal transformation and the importance of these regulators in metastasis, sure to provoke some controversy among cancer biologists, followed by Peter Holland who described his studies on the evolution of Hox clusters in different bilaterian lineages. Janet Rossant was awarded the ISDB Harrison Medal and presented a lecture: Embryos and stem: cells developing together. Roberto Mayor was presented with the Latin American Society for Developmental prize and described his recently published work on how the phenomena of "Chase-and-Run" promotes directional migration of neural crest and segregation of placodes.

Society for Developmental Biology Award lectures were also given by Bill Wood (Viktor Hamburger Outstanding Educator Prize), Marianne Bronner (Edwin G. Conklin Medal) and John Fallon (Society for Developmental Biology Lifetime Achievement Award). Plenary session 2 had something for everyone with presentations by Martin Chalfie on how nematode nervous system develops, Ben Scheres on Arabidopsis root development, and Patricia Beldade on the genetic basis of phenotypic variation using butterfly wing spots as a model system to examine how Hox genes can regulate patternformation.

No developmental biology meeting would be complete without a new and expensive imaging system. In this respect Zeiss did not disappoint a critical audience with their presentation of Light Sheet Microscopy, which allows fluorescent imaging of large living structures, e.g. a beating zebrafish heart, with low light exposure.

As this was the International Society for Developmental Biology meeting and occurs only every four years it is perhaps worth briefly reflecting on progress in the field of developmental biology, or at least the state of the field represented by this meeting. Overall, I was struck by three things. Firstly, evolutionary studies have made, and are making, substantial progress in showing how conserved genes and gene networks are able to produce diverse phenotypes. Secondly, mathematical modelling has come a long way from early attempts to simply reproduce the interactions of cell populations in a mathematical form. There were a number of talks where modelling was used to make predictions of how cells interact with each other and their environment, for example considering a balance between repulsion and attraction, which were then used to make experimentally testable predictions. The results of these experiments were then used to generate a better model. A skeptic may ask how many tuneable parameters are needed to produce some impressive looking modelling of cell behaviour; nevertheless, when combined with genetic and biochemical studies of gene networks, I expect real progress in understanding how complex organism can develop. Finally, there does seem to be some conservatism in the genes and regulatory pathways currently being studied. The majority of gene names appearing in talks and on posters were the "usual suspects", that is genes, albeit very important genes, discovered last century. There is no doubt that this work is good and important; however, one is left with the impression that, at least in mammals there are only a small proportion of the 20 thousand protein coding genes that are being actively studied during development and potentially a large number of developmentally important genes are ignored.

Overall there was much to be learned at the 17th ISDB meeting and it was well worth the long journey across the pacific.

Tim Thomas

Your opinion

Embedding health and medical research: what does this mean for biomedical science?

In February of this year, the McKeon review was presented to the Hon Tanya Plibersek, Minister for Health. The vision of the report was 'Better Health Through Research' with the strong argument that Health and Medical Research (HMR) embedded within the health sector was essential for our country's capacity to maintain the health of the nation. Attaining this vision was underpinned by 21 key recommendations within 7 areas intended to shape the future of Government support for HMR across the next decade. In combination, the report proposed a staged (and largely back-ended) increase in expenditure on HMR from $6 billion per annum to $11 billion per annum[1], representing an overall increase in the percentage of the health budget spent on research from 2% to 3.3%[2].

"The overarching vision for health and medical research is one where research is fully embedded in all aspects of healthcare to deliver 'Better Health Through Research' and achieve the aspiration for Australia to build and maintain the world's best and most efficient health system."

Simon McKeon

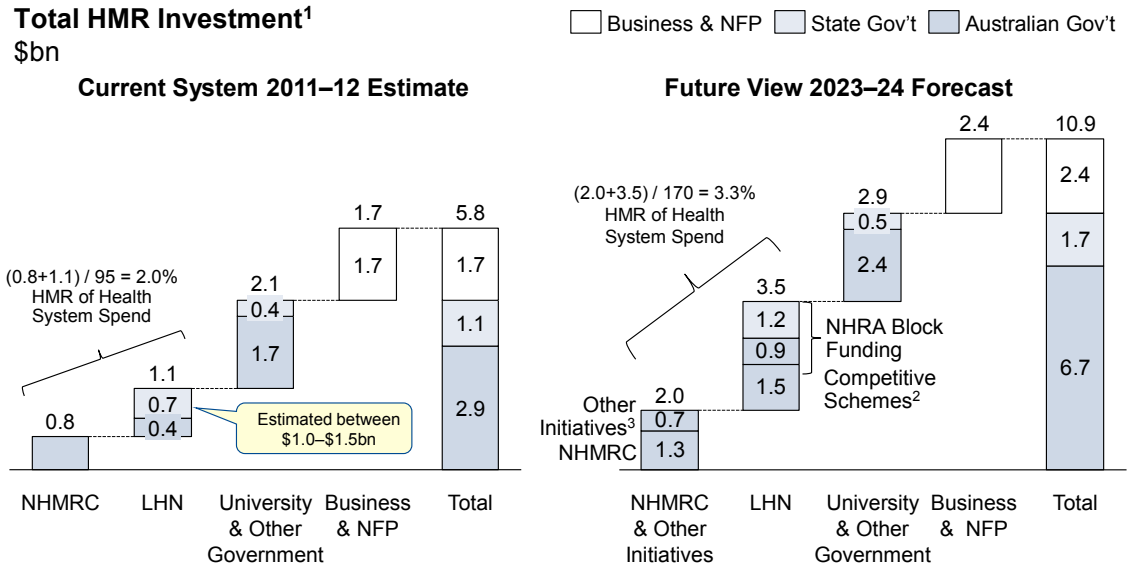
The Minister responded very positively to the intent of the review, allowing the final report to reach the public domain in April (mckeonreview.org.au), Sadly, she has made no commitment to date to implement any of the recommendations. This was understandable given the then Government had announced an election, albeit many months in advance of the actual election date. However, there has been little subsequent evidence that this Government, even wearing a new leader in recent days, or the Opposition are moving to embrace the recommendations as part of election promises. Indeed, with National Disability, Gonski and Boat People all seeking money, and a media intent on scaring the voting public into a state of paranoia about a deficit, there appears to be little appetite for any other funding commitments from any political quarter. The reality is that the cost to the Federal Government, and hence to taxpayers, of supporting the Health of this Nation was >$53 billion in 2009-2010 (4% of GDP). Indeed, the cost to the nation as a whole was in the order of $121 billion ($32 billion from state Governments and $37 billion from non-Government sector). This represents a very large industry in which the drivers are as much about an aging population as they are a demand for access to new drugs and technology. Unlike most large businesses, who would invest in the order of 10% of expenditure on R&D, there is no embedded, coordinated R&D arm of Health ensuring that the business remains viable as it evolves. Indeed, there is not even an R&D element nationally evaluating the product being delivered.

The McKeon review was tasked with addressing a wide number of terms of reference, however implicit in the brief was a desire by Government to understand how they might i) reign in expenditure on Health and ii) find other sources of money to fund research. In totality, this is an impossibility. Health will continue to be a Government responsibility and hence the R&D of that enterprise cannot become an outsourced commodity. What is required is a way to explicitly link HMR with health outcomes, an objective espoused worldwide but very difficult to deliver. What the review argued was that the deliberate and systematic stripping of research endeavours from within the health system has eroded the association between HMR and health delivery. Hence, while as a country we continue to perform at a high level internationally with respect to academic indicators of research outcome (publications, citations), HMR and health are moving in different spheres. The imminent introduction of 'activity based funding' as a part of 'health reform' represents a significant risk that this situation will worsen, but equally a significant opportunity if we recognise now the need to fund HMR from the health budget.

Don't we already do this? Doesn't the NHMRC budget come from the Department of Health and Aging? While the Australian members of ANZSCDB are very focussed on NHMRC process, policy and cash distribution, this represents only 20% (approximately $0.8 billion) of total Government spend on HMR nationally. Where is the other 80% coming from? Indeed, finding accurate numbers for this expenditure proved one of the greatest challenges that we faced as a review panel. However, within that spend is included approximately $1.1 billion provided to local health networks (teaching, training and research budgets to the hospital sector), the use of which is not reported and appears impossible to audit. The Government also supports HMR by funding block grants to the University sector, funding a portion of CSIRO, capital expenditure, national enabling infrastructure and some CRC funding. Do I hear you say 'but this is not research funding'? Indeed it is. Without such infrastructural support monies, no research within a competitive grant could be performed. Fully funding HMR requires funding for bricks and mortar, lights, lifts, lab space and 'machines that go ping'. Despite this, the overheads of performing research in this country remain at such a knife edge that arguably even with this existing expenditure, funding for research falls below the cost required to perform it. A key recommendation of this review (Recommendation 10) and at least 2 previous reviews (Wills review, Grant review) is for Government to fully fund research; in other words fund the research-associated overheads required to all locations performing research. Currently the University sector gets some, but not all, of the overheads required to support research. However, even this is not yet being paid to the promised level of 60c in the dollar (in the US, this is around $1.10). Despite a major evaluation of research excellence within this sector, the current Government chose not to provide the SRE funding promised. The irony in the University sector, where research excellence is a major driver of international status and hence of international student enrolment, is there is little financial incentive being provided for these organisations to remain research excellent. Indeed, the more successful their staff at attracting grants, the higher their budgetary bottom line. While NHMRC budgets are effectively reduced (not meeting cost increases), this toll will tell. As a result of the Grant review, independent Medical Research Institutes receive 20c in the dollar via the IIRIS budget distributed by NHMRC. However, no hospital-based research attracts any overheads whatsoever. With the move even further towards activity-based funding in hospitals (monies to flow based upon the number of procedures being performed), the risk is that no research will be facilitated in this sector at all. To address this latter issue in particular, the review has recommended funding for the creation of Integrated Health Research Centres (recommendation 3) that will facilitate genuine partnerships between Universities, MRIs and local health networks to both perform HMR and deliver the outcomes of that research back to the patient.

How do the recommendations in McKeon directly affect me as a cell and developmental biologist? The McKeon review was not a review of the NHMRC but of all health and medical research. However, the review obviously considered the NHMRC as a key component of the existing HMR funding sector. Many of the specific recommendations pertaining to competitive funding by the NHMRC are contained in Chapter 5 (Maintain Research Excellence, recommendations 8-11). While many of these are obvious, many are statements of issues or aspirational intent where the approach taken by the NHMRC to deliver on these must remain less prescriptive. Key to your sanity are clear directives about streamlining the process of competitive grants, both from the perspective of the applicant and the assessors. What will be unavoidable without adoption of the recommendations to increasing NHMRC funding (an increase in the NHMRC Medical Research Endownment Account from 0.8 to 2.0 billion by 2024) is an inexorable decline

The impact of the new initiatives and growth in existing funding will increase total HMR investment from ~$6bn to ~$11bn by 2023–24



Notes:
1. Nominal dollars (assumes 5% forecast growth 2011–12 to 2023–24 for existing HMR funding and new initiatives inflation adjusted at 3%)
2. Competitive schemes include funding for IHRCs, clinician researchers, non-commercial clinical trials, enhancing public health and health services HMR, accelerating health system innovation and creating evidence-based health policy guidelines
3. Other initiatives largely overseen by NHMRC and include funding for expanding NHMRC, streamlining clinical trial processes, career support, indirect costs, enabling infrastructure, commercialisation fund, matched philanthropic donations and implementation

Source: Treasury; DoHA; NHMRC; ABS; AIHW; Pacific Strategy Partners analysis

in the amount of research activity able to be supported nationally. There has been a keen but misguided obsession within the research community with success rates within the NHMRC system. The reality is that all percentages represent a numerator and a denominator. Within the major granting scheme of the NHMRC, the Project Grants, each year the number of applications increases by an order of 8-10% and the amount of money being requested per grant increases similarly.[3] This is outstripping annual increments to the monies available. Sustaining funding above the magical 20% (note that pay lines for some Study Sections in the US have now reached 3%) can only be achieved if each successful grant is stripped of cash. The focus of the review, therefore, was not on what success rate should be achieved but on how to support the best research across the spectrum of biomedical, clinical, public health and health services research. Modelling within the report shows that funding an increased number of 5 year project grants with a lower success rate will maintain the size and stability of the workforce without substantially shifting the demography of the funding allocation (by state or sector). This will require us to accept that success rates may fall. It will also require us, as a portion of the experts who perform peer review, to accept that a five year grant proposal in biomedical science is acceptable to fund. The statistics around this are telling. It has been an option to seek 5 year funding from the Project Grants scheme for a decade, yet it is the biomedical applications that have the lowest proportion of such grants awarded (8% compared to 27% in public health or 23% in health services research). GRPs (that is us) need to remember the instability and conservatism created by such short-term funding and act in the interest of the sector rather than themselves.

But won't placing emphasis on embedding research in the health sector mean less biomedical grants? This is an opinion not infrequently encountered during the extensive national tour that the review panel members embarked upon for the review. Counter to this was the opinion that Government should only fund clinical, public health and health services research within what is regarded as HMR. Indeed, scientists in other areas of basic science view biomedical fields such as cell and developmental biology as having had the best of both worlds, with funding often accessible under the guise of science as well as HMR. Indeed, many of us receive competitive grant support from the NHMRC and the ARC.

There is genuine and strong overlap between understanding fundamental principles of cell and tissue morphogenesis and understanding and even treating disease. Can this be embedded into Health? The review argues that it must be. Why? From the perspective of the Australian taxpayer, who is funding the majority of the research being performed by cell and developmental biologists in this country, the clear assumption is that our results will make a difference to their lives, at least at some point in time. Biomedical research such as cell and developmental biology generates new knowledge. The key is how that knowledge is used and whether it ultimately underpins clinical or public health research to deliver new therapies. Preventing a capacity for such research to be done in alignment with clinical, public health and health services research will ensure we fail to translate even in the longest term. This would be the end result of carving biomedical research from HMR and redefining it as pure science. It is equally the end result of supporting distinct silos within HMR funding in which biomedical research is done in a vacuum and not facilitated to be performed as part of broader research programs. Has support for biomedical research declined? The reality is that funding from the NHMRC for biomedical research has increased by 11% (compound annual growth rate, 2002-2011) in the decade following the NHMRC budget increase that resulted from the Wills review. While in the same period, clinical (16%), public health (17%) and health services (26%) research have also increased, this comes off an often very small base and biomedical research continues to represent 45% of all NHMRC expenditure (>52% of Project Grants). Objectively, this would appear to leave biomedical researchers little to complain about. The challenge with an effectively declining NHMRC budget is to prevent differential erosion at the expense of justifiable capacity building in other areas. This highlights the need for biomedical researchers to embrace the purpose of HMR funding and either better articulate the significance of their research to health or reassess what they are doing so that it is of significance.

How do we effectively link biomedical research with health outcomes? One approach is to provide strategic funding based on national HMR research priorities. In a recent opinion piece for this newsletter, Professor Jenny Stow argued that we should be moving away from the historical anomaly of the laboratory framed around a God professor. Her arguments were that such structures impede and discourage the development of younger scientists and are not the logical basis upon which large collaborative projects should be run. The drivers for this structure, however, are embedded in the carrots and sticks around survival in science here and in most countries – HMR is no exception. Sustained research endeavour is linked to the personal profile and output of a small number of senior scientists and these individuals live under constant pressure to perform. In Australia, the cycle of that pressure is so short that the focus at an individual level becomes around survival rather than taking a long term view and addressing a risky or complex problem. Sounds a bit like the life of a politician in a democratic country. One approach being attempted in other countries, such as the UK and Canada, is to provide at least a portion of research funding to large endeavours. In this way, longer term, higher risk, more collaborative and more multidisciplinary research can be undertaken. Coupled with this have been a variety of attempts to identify areas of research/health priority or desirable long term health outcomes and to stream funding on that basis. The NHMRC has begun investigating such a 'requests for application' process and have constructed a Translational Research Faculty to assist in the process of bringing to the NHMRC such areas of priority. The McKeon review recommended a clear and ongoing identification of HMR priorities determined with the involvement of all stakeholders, not just those performing the research (recommendation 6). It also recommended that such prioritisation should involve decisions about how best to advance outcomes in any identified area with a portion of HMR funding being targeted to research in priority areas. What types of funding this might actually involve is likely to vary from capacity building (people support/

training) to a focus on a particular type of research (e.g. public health in this example) depending upon whether we are developing personalised medicine or eradicating infection. What is being proposed here is a paradigm shift, both for the funders and the recipients of the funding. Rather than being seen as another demand on the same pot of funds, identification of priorities and funding strategies for these priority areas should provide justification for additional Government and philanthropic funding. It should also act as an opportunity for all of us to participate in asking the question 'how could my research make a difference.'

Whether the recommendations of the McKeon review are implemented remains to be seen. However, it provides a framework from which every one of us can justify Government expenditure in this sector. It rests with those of us actively within the sector to ensure the politicians, and our fellow taxpayers, understand the need for research within their health sector, understand the need for links between the research being performed in MRIs, Universities, Health Departments and Hospitals and to see such funding not as an optional extra but as an essential component of our future.

[1]Current estimates of $6 billion HMR expenditure refers to total spend on HMR, which includes industry and sectors of Government other than Health).

[2]McKeon review estimated total Government expenditure from within the Health budget at $2 billion = approximately 2% of the FY12 Health Budget ($95 billion including State and Federal Govt expenditure). Assuming all initiatives are implemented, projected NHMRC + Local Health Network expenditure would be projected at $5.5billion in FY24 = 3.3% of forecast Health Budget ($170bn in FY24)

[3]Of note, there is a tail of repeatedly unsuccessful applicants that exacerbate this process whilst adding to the workload of the sector around evaluation. Indeed, we discovered a perverse set of drivers for the continued submission of non-competitive applications with Universities including attempts to attract funding as a promotional metric for academic staff.

Recommendations of the McKeon Review

Embed Research in the Health Sector

1. Drive research activity in the health system
2. Establish sector leadership and governance
3. Establish Integrated Health Research Centres
4. Build Health Professional Research Excellence
5. Accelerate Clinical Trial Reform

Support Priority Driven Research

6. Establish national health and medical research priorities
7. Support a range of strategic topics

Maintain Research Excellence

8. Train, support and retain the workforce
9. Streamline competitive grant processes
10. Rationalise indirect cost funding for competitive grants
11. Build enabling infrastructure and capabilities

Enhance non-commercial pathway to impact

12. Enhance public health research
13. Enhance health services research
14. Accelerate health system innovation
15. Inform policy with evidence

Enhance commercial pathway to impact

16. Support research commercialisation
17. Enhance commercialisation environment

Attract Philanthropy and New Funding Sources

18. Attract philanthropy
19. Identify new funding sources

Invest and Implement

20. Invest for the future
21. Action report recommendations

Professor Melissa Little is an ANZSCDB member and an NHMRC Senior Principal Research Fellow at the Institute for Molecular Bioscience, The University of Queensland. Melissa's area of research is kidney development. Her fundamental research into how this organ forms underpins her research into congenital kidney anomaly, disease, repair and regeneration.

Membership News

Professor Sharad Kumar, Co-Director of the Centre for Cancer Biology in Adelaide recently remarked that 2013 “must be my year!” In March he was elected as one of 20 new Fellows of the Australian Academy of Science, and soon after, was awarded the 2013 Lemberg Medal from the Australian Society for Biochemistry and Molecular Biology. Then just recently, he was announced as the FAOBMB Award for Research Excellence 2013 - the highest award bestowed by the Federation of Asian and Oceanian Biochemists and Molecular Biologists. Certainly a good year, and a well-deserved nod to Sharad’s scientific and professional standing.

A message from our Secretary..

The ANZSCDB is represented in each state/territory/NZ by two members, typically appointed out of synch for 2-year terms. These representatives serve on the National Council of the society and are charged with advancing the fields of cell and developmental biology at a local level. Increasingly, this has involved organizing a yearly symposium with the society's support, as well as promoting the opportunities afforded by membership.

Each year at the AGM one of the state/NZ representatives steps down. **We are now calling for nominations for keen and engaged new representatives in each state and territory**. This opportunity is an excellent way to engage with your peers, to advance and promote wider interest in our fields and to serve the society.

Applications will be accepted before the 1st of September to the society secretary (ian.smyth@monash.edu). Candidates may join the society at the time of application if they are not already members. Please include a 3-4 line summary of your research interests and the name of a nominating society member.

Also, as required by our constitution, **I hereby announce that the 2013 ANZSCDB Annual General Meeting will be held at 5:30 on Wednesday, October 2nd as part of the ComBio meeting in the Perth Convention Centre**. Relevant documents/room information will be circulated to members beforehand.

We look forward to seeing you there!

Ian Smyth
Secretary, ANZSCDBI

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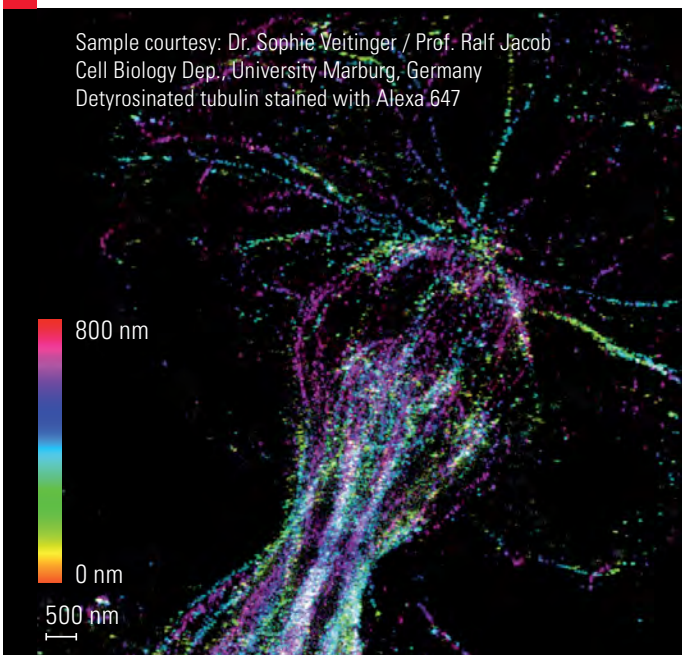

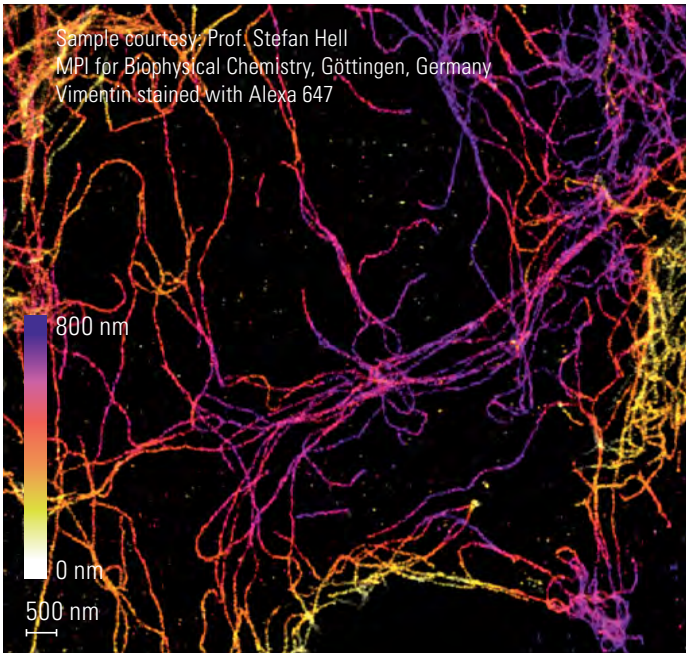

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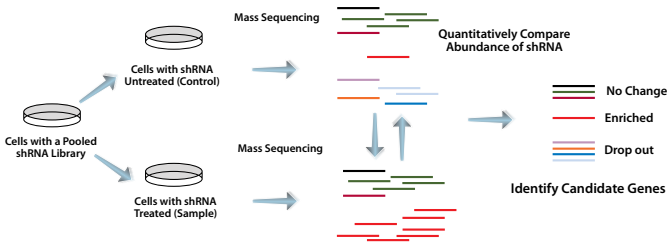

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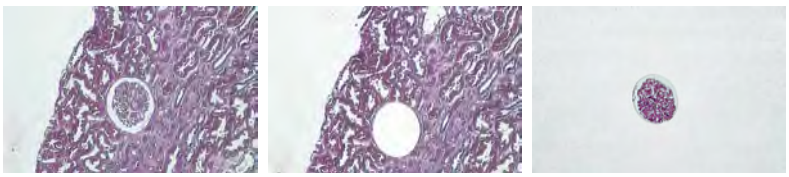

Lasercutting of kidney tissue section on a MembraneSlide - PALM LCM Applications

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