Australia and New Zealand
Society for Cell and Developmental Biology
INCORPORATED

NEWSLETTER - June 2010 Volume 1 of 3 www.anzscdb.org

Edna Hardeman

We have grown!

Increasing our membership was a major objective for this year and we are off to an excellent start. A warm welcome to new members and a thank you to those who have renewed! Since January our membership has grown by 30%. Please help us to continue the momentum and encourage staff, students and colleagues to join. Tell them to simply click on http://www.anzscdb.org/ANZSCDB-Membership.html

Announcement: 2010 Young Investigator Award

The Young Investigator Award recognises an outstanding emerging leader in our disciplines. The applicants for the 2010 award were truly impressive and the selection committee praised the talent that is apparent in the up and coming leaders in our Society. All are to be congratulated on their achievements. The committee is pleased to announce that the recipient of the 2010 YIA is Assoc/Prof Kat Gaus from the Centre for Vascular Research, the University of New South Wales. Kat's research is focused on understanding the organisation of the plasma membrane using a multi-disciplinary approach that includes cell and molecular biology, biphotonics and surface chemistry. What sets Kat apart is that she is actively engaged in developing new generations of microscopes which allow the analysis of single molecular events. This will transform our understanding of signalling pathways and the organisation of membrane domains and how they regulate signal transmission. One of the major outcomes from Kat's development of these microscopes is the establishment of the Biomedical Imaging Facility at UNSW which is the most advanced fluorescence microscopy centre in Australia and is comparable with the best internationally. Kat will receive her award at OzBio2010 and present her work in the symposium Dynamic subcellular compartments. Kat's scientific journey and accomplishments are profiled in this newsletter.

OzBio2010

Already we've achieved a record attendance at OZBIO2010 (Melbourne, 26 Sept – 1 Oct, 2010) which encompasses the Society's annual meeting COMBIO together with the 12th IUBMB and the 21st FAOBMB. We are indebted to our members on the organising committee Marie Bogoyevitch and David Jans (Cell Architecture & Trafficking Stream) and Helen Abud and Joy Rathjen (Developmental Biology Stream) for organising the symposia as well as securing prominent plenary speakers in our disciplines including Eliza Izaurralde (Scientific Director, Max Planck Inst for Developmental Biology), Tom Rapoport (Harvard) and Lee Niswander (Uni Colorado). This year the Society offered two schemes to engage and support postdoctoral fellow and student attendance at OZBIO. ANZSCDB together with ASBMB offered fellowships that covered

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President's Report

attendance at the Young Scientist Forum (YSF), a conference of 50 international and 10 Australian PhD/early postdoctoral scientists preceding OZBIO, as well as OZBIO. The response was high as was the quality of the applications, with approximately 40% of the applicants ANZSCDB members. The selection committee is pleased to announce that National YSF Fellowships were awarded to Stephanie Bannister (CSIRO, VIC) and Cassy Spiller (IMB, QLD). In addition, ANZSCDB offered 20 student bursaries to attend OZBIO (Awardees: Heidi Bildsoe, Teresa Bonello, Yiqian Chen, Elizabeth Christie, Baptiste Coxam, Nikki Curthoys, Felix Grusche, Joelle Kartopawiro, Kristie Lee, Jet Phey Lim, Maggie Ma, Sabine Mangold, Rosemary Manhire-Heath, Vicki Metzis, Melissa Pert, Anne Raimondo, Ashesha Sinha, Sophie Wiszniak, Sheena Yao, Hyun Jin Yoo).

Sponsored Meetings & Workshops

ANZSCDB's Distinguished Visiting Lectureship in Cell & Developmental Biology Program sponsored Ed Munro (University of Chicago) as the 2010 ANZSCDB HM International Speaker at the Hunter Meeting (http://hcbm.mtci.com.au/) as well as an invited speaker at the 16th NSW Cell and Developmental Biology Meeting, UNSW. Ed was an outstanding contributor at both meetings offering two distinct talks that demonstrated the emerging power of a systems biology approach to fundamental questions in cell and developmental biology. Please do submit suggestions for future ANSCDB speakers at the Hunter Meeting.

The 6th Developmental Biology Workshop (Oct 24-27, Yarra Valley Conference Centre) provides a unique opportunity to engage with international leaders in Developmental Biology and receive in depth tutelage in prominent topics. Organisers Peter Currie, Peter Koopman, Richard Harvey, Rob Saint and Patrick Tam have organised an outstanding program including invited speakers Margaret Buckingham, Stephen Cohen and Austin Smith. Further information is available in this newsletter and on our website http://www.anzscdb.org/groups/anzscdb/wiki/0b07d/Events.html

State/NZ Chapter Activities

Our program to support local and state Cell and Developmental Biology themed activities is strong with one state-based meeting already held and two organised for later in the year. NSW state representatives Thomas Fath (UNSW) and Bill Phillips (USyd) organised the 16th NSW Cell & Developmental Biology Meeting on March 15th held in the School of Medical Sciences, UNSW and jointly sponsored by ANZSCDB and ASBMB. Over 100 attendees enjoyed an excellent scientific program which included invited speakers Ed Munro (Uni Chicago), Patrick Humbert (Peter Mac) and Miles Davenport (CVR, UNSW). Meetings organised include the 20th Annual Combined Biological Sciences Meeting - Megan Lloyd, August 27th, University of Western Australia and we are delighted to support the 1st Brisbane Cell & Developmental Biology Meeting - Dagmar Wilhelm, Eva Kovacs and Kelly Smith, Oct 22nd, Institute for Molecular Bioscience, University of Queensland. Further information is available in this newsletter.

Affiliated Societies

As a member society of the National Committee for Biomedical Sciences (NCBMS) of the Australian Academy of Science, we were able to nominate student members to attend the 60th meeting of Nobel Laureates in Lindau, Germany in 2010. We were delighted when 2 of our nominees, Duncan Mortimer (UQ) and Denise Miles (Murdoch Institute) were selected by the international Council for Lindau Nobel Laureate Meetings. They will attend the meeting in Germany from June 27 to July 2 courtesy of the Australian Academy of Science and the Lindau Committee.

Our thanks go to Marie Bogoyevitch and Aleksandra Filipovska who represented ANZSCB at FASTS' Science Meets Parliament 2010. SmP provides valuable insight into how science is perceived at the federal level and provides practical instruction on how to represent science to the politicians.

EDITOR'S COLUMN

In this issue of the newsletter we highlight the winners of the photography competition which will feature as the new ANZSCDB banner. Lots and lots of conferences coming up! A detailed outline of the OzBio2010 program is shown

Congratulations to A/Prof. Kat Gaus whom is the winner of the ANZSCDB Young Investigator of the Year Awardee.

Please keep me updated with any comments, news and research advances that you would like to share with other ANZSCDB members.

Megan Chircop
(nee Fabbro)
mchircop@cmri.org.au

As a member society of the International Society for Developmental Biology we have been asked by the President, Claudio Stern, to comment on the activities of the ISDB (see letter in this newsletter). Please do take this opportunity to respond as to how the ISDB can best meet the needs of our members.

A Bit of Fun

To showcase our excellent cell and developmental biology research and the innate artistry of our disciplines, we called upon our members to submit images to use in the heading of the Society's homepage on the web and in printed material advertising our Society. Thank you to all who submitted images to our 2nd ANZSCDB Image Competition and enjoy the winning images shown in this newsletter and of course, on our homepage http://www.anzscdb.org/

Edna Hardeman

Prof. Jenny Stow

Institute of Molecular Biosciences

University of Queensland

JENNY STOW

The joys of directing traffic

As far back as Jenny Stow can remember, she and everyone else in her life assumed that she would end up as a vet. Of course, life generally bowls the wrong'un at some stage, and the year that she applied, the vet school in Melbourne took in 17 men…and no-one else. So, despite getting the marks, Stow's plans for the future were already set to change. One look at her CV, however, tells you that it turned out OK.

Just a few years later, Professor Stow is an NHMRC Principal Research Fellow with the Institute for Molecular Bioscience (IMB) at The University of Queensland where she heads a busy and productive research group in cell biology. Her contributions to protein trafficking research over the past two and a half decades and her role as a key driver of Australian cell biology are recognised internationally. She has over 100 peer-reviewed publications to her name and a career-long list of fellowships, national and international grants, appointments, prominent invitations and awards. In her spare time, she has also been Deputy Director (Research) of the IMB since 2008.

The lure of research land

So, going back to those summer salad days in the 70s, Stow started a science degree at Monash University with the intention of reapplying for vet science the next year…instead, she discovered basic science, and particularly immunology. She went on to do Honours in the Pathology department at Melbourne's Alfred Hospital, where she spent the year trying to make antibodies in rabbits to different neuronal populations in the brain. Besides gaining several pet rabbits from that year, Stow also came to realise how much she loved doing research…and the dye was set.

After Honours, Stow took up a PhD project with Eric Glascow in the Anatomy Department at Monash University and Bob Atkins at Prince Henry's Hospital. "They worked on renal cell populations in glomerulonephritis (GN) and my job was to characterise those cell populations by culturing cells from glomeruli that I isolated from patient biopsies. This work introduced me to clinical-type research and to electron microscopy, both of which I loved."

Stow completed her PhD quite quickly, but had realised towards the end that her research existence was very cloistered, with little exposure to the idea of the next step or how to get there. "By happenstance, not long before I finished my PhD I was in the department next door trying to find out about some extracellular matrix proteins in my samples, and I met Vince Hascall who was on sabbatical from NIH. He was, and still is, one of the world experts on proteoglycan matrix proteins. Vince sort of took me under his wing from then on, and he was the one who suggested that I write to Marilyn Farquhar at Yale University – she was working on both kidney and proteoglycans. So I did…and that is how ended up with a Fogarty Fellowship and on a plane to the USA the day after I handed in my thesis."

Finding the Holy Land

The Department of Cell Biology at Yale University School of Medicine was a 'mecca' of cell biology at that time and presented a very steep learning curve for Stow in terms of the research world. "For one thing, I was already months behind on journal articles because Australia got them months after the published date back then. It was a very eye-opening but also very exciting time, and it was when I discovered cell biology. My peers at Yale were fantastic and I learnt heaps about science from Marilyn and from everyone around me. Being a medical school it was also rife with these incredibly dedicated and very smart clinician scientists, and the intensity of that working environment has stood me well ever since."

In Farquhar's lab, Stow set about trying to characterise glomerular basement membrane proteoglycans using biochemistry and electron microscopy. The work yielded several publications, including a couple that turned out to be quite famous papers about proteoglycans making up the glomerular filter for plasma proteins in the kidney. Towards she end of her time at Yale, Stow collaborated with Michael Caplan, then a postgraduate student, to look at polarized secretion in kidney epithelial cells. This successful collaboration yielded a paper in Nature and ignited Stow's growing interest in the mysteries of post-Golgi trafficking.

After six highly productive years, Stow left Yale to take up her first Faculty position at Massachusetts General Hospital (MGH)/Harvard Medical School in the Departments of Medicine and Pathology, and moved to Boston. This was to begin an equally productive period and working relationship with renal clinician and department head Dennis Ausiello and fellow group leader, Dennis Brown, working on heterotrimeric G proteins and trafficking. "They were both fantastic mentors who provided loads of support and advice while I was starting my own lab." There, she continued with the kidney trafficking theme, but shifted to more of a Golgi focus.

Again finding herself in an incredibly exciting and stimulating research environment, this next period at MGH was also pivotal for Stow's future career success as a cell biologist. "The Harvard appointment allowed me to establish an independent research group with funding from NIH and various foundations. I became an investigator on two NIH programs – one in renal cell biology with others in the Renal Unit, and another in digestive diseases, for which I also ran a morphology core facility. Then, with help from the Dennis's, I also wrote and got my own RO1 grant from the NIH. I certainly learnt lots during that time about funding…and it solidified for me the absolute value of basic research for advancing medical science." Stow's work in Boston produced several key findings on trafficking and polarity in kidney cells, revealing new functions for G proteins at the Golgi. These findings translated into several high-profile publications that attracted not only international recognition but also a 5-year fellowship from the American Heart Association.

Jenny with her family on a holiday in Uluru during 2005.

Homeward bound…sort of

After 13 or so years in the US, Stow felt it was time to head home, and a Wellcome Trust Fellowship helped her do just that. "Getting the Wellcome fellowship was really a big thrill – it was my ticket back to Australia. I settled on Brisbane after David James contacted me and asked me to join him at the CMCB (now the IMB) at UQ. He had also recently returned from the US to establish a focus in cell biology there, and was looking for company. So, although Brisbane was kind of a strange destination for me (coming originally from Melbourne), it was one I chose rather deliberately." Cell biology was not well recognised as a field in Australia at that time (early 1990s) and research funding was very tied up with a lot of the big interest groups in Melbourne…and starting up a thing called cell biology there all by herself seemed rather daunting. "I knew that David and I would at least talk the same language. NHMRC funding was also state-based in those days and so the competition was a little easier in Qld compared to NSW or Victoria, especially for emerging fields…and this was a big incentive. Of course what I thought at the time was that I would go to Brisbane, get a couple of grants and work there for a while, then go home to Melbourne…and here I still am, interestingly along with most of the other group leaders in the CMCB at the time who had similar plans!"

The culture shock that was Brisvegas

So in 1994, Stow arrived in sunny Brisbane with container loads of stuff and a Harvard undergrad student called Brandon to help her set up. Brisbane was a bit of a shock work-wise for Stow (heavily censored summary of what she really said). Not only was she situated on an undergraduate university campus for the first time in her research career, surrounded by typical undergraduate students and all their trappings (bless them), she missed the support and intensity of having a strong cell biology community around her. "CMCB back then was home to a range of different scientists and research areas, and there was no natural or obvious home for my science. David James and I really were a bit of an outreach station for cell biology."

Stow quickly recruited some great local talent for the lab, some of whom are amazingly still around, and got going. Together, she and James began attracting other like-minded souls to join them including Rob Parton from EMBL in 1996 and Alpha Yap from the US a couple of years later, and slowly the cell biology community at UQ started to take shape and to become known. "We built up new staff and equipment, and some renewed enthusiasm, for microscopy, as well as starting new courses to incorporate cell biology into the undergraduate curricula. So, very quickly we established ourselves a cell biology base, which was enormously important for the research to go ahead."

In her spare time, Stow acquired a faithful hound called Wally, untold number of cats, and set about discovering the wonders of camping, scuba diving and snorkelling off the Queensland coast with the University dive club. This led to discovering a guy called Doug, which led to wedding bells, which led to…well, a very little guy called Nick in late 1998. Thus, she also established a family base in Brisbane,

which was enormously important in keeping her sane in the non-work hours.

From then of course the CMCB grew and eventually morphed into the IMB, moving into a shiny new building in 2003. “Through the efforts of people like John Mattick, the institute has grown tremendously from its early days…but at just the right pace to keep most of us here, incorporate new people and grow the science accordingly,” says Stow. “The cell biology community has also grown enormously in Qld in the time I have been here and there is now a quorum of people and a vibrant, world-class scientific home here now and, Brisbane is still a great place to live.”

Work Xmas parties - a fun tradition in the Stow lab!

David James did finally leave the Queensland cell biology family about 10 years later, heading south to a senior role at the Garvan Institute in Sydney, but still remembers those early CMCB challenges very well. “Jenny was a trail blazer. She gave up a fantastic spot at the MGH to move to Queensland, which at the time was a cell biology backwater. She saw the opportunity and knew she had what it needed to get the job done. Today, just 15 years later, she is the Deputy Head of one of the most outstanding research institutes in the country and cell biology is one of the flagships of the organisation.”

New home…new directions

Scientifically in Brisbane, Stow continued with the G protein work and was immediately successful in securing NHMRC funding to do so. “It was also a time, however, when I did sit back and really think about what I was working on,” she recalls. “I realised it was going to be more difficult to continue the renal stuff here – there were no readily available colleagues doing renal cell biology and clinical ties were hard to maintain with the campus being so far from the major teaching hospitals.” So, a mixture of the circumstances and some new cell biologists appearing (eg. Alpha Yap) facilitated her decision to pick up trafficking a bit more broadly. “I kept working with post-Golgi trafficking in epithelial cells, but added E-cadherin as a membrane protein cargo to her soluble proteoglycans.

In 1999, Stow’s group in collaboration with Yap made the key finding that epithelial adhesion is maintained by dynamic recycling of cadherin complexes, opening up a whole new project stream for the group in polarized trafficking. Later work also revealed a novel role for recycling endosomes in the exocytosis of E-cadherin using cutting-edge microscopy and image analysis of fixed and live cells. Continuing work in this area focussed on the trafficking events and machinery that regulate cell polarity and endocytosis in polarized monolayers of epithelial cells, and more recently, in 3D cell culture cyst epithelia models. Stow sees this work on E-cadherin sorting and cell polarity progressing even further with new bioinformatic input available at the IMB and from the increasingly sophisticated capabilities in immunolocalisation and cell imaging.

Blast from the past

“Then about 10 years ago, I went even more crazy, and branched out to another cell type,” Stow recalls. “Even though I had worked on epithelial-type cells for a very long time, they just didn’t traffic enough of anything. So I started almost a side project looking at macrophages, which were actually the cells I had spent many hours of my PhD life staring at down an electron microscope.” This work turned out to be a much bigger undertaking than Stow expected, mainly because, as she soon discovered, there was very little known about how macrophages traffic almost anything. It grew into a major focus in the lab, yielding a whole new branch of study and reconnecting Stow with one of her earlier loves – immunology. This work progressed steadily and successfully, attracting national funding from NHMRC and a 5-year grant from the NIH.

Stow’s macrophage research concentrated on tumor necrosis factor (TNF) and later, other inflammatory cytokines, as trafficking cargo. “The pathways involved in making sure these molecules get secreted from immune cells are fundamental to immune function and they lie at the heart of pathologies in inflammatory disease.” The group’s initial work involved characterising previously unknown aspects and machinery of TNF trafficking in macrophages, before going on to reveal new pathways and regulatory mechanisms for TNF secretion via recycling endosomes and phagocytic cups. “We subsequently discovered that subcompartments of recycling endosomes in immune cells regulate the differential sorting and selective secretion of cytokines. Papers coming out of this work were all highly cited and are widely recognised for making major changes in our basic knowledge of cell biology.”

Rachael Murray was a crucial part of ‘team macro-

phage' in Stow's lab and remembers the heady days surrounding the key recycling endosome findings (published in Science). "Jenny has real passion and enthusiasm for science. Her brain seems to work on overtime and I am always amazed at the ideas she came up with. She is a fountain of knowledge and never ceased to surprise me with it." Murray now has her own group at The Children's Hospital in Sydney and values the lessons learned at the IMB with Stow. "Jenny is an excellent mentor to both her lab and other people in the department who can often be found in her office asking for career guidance and advice."

Stronger together

Collaborations with other cell biologists in Australia and with colleagues overseas have been very important to Stow's research here over the last 15 or so years. In fact, a recent and particularly exciting advent for her group grew out of a long-standing collaboration with Paul Gleeson at Bio21 in Melbourne. "We have been able to manipulate a Golgi trafficking protein in a mouse and show for the first time that it really does affect TNF trafficking in vivo," Stow explains. "So we know now that when we mess around with trafficking in our cells in culture, it is translatable to something we can do in whole bodies." The potential of these findings for eventual applications in disease is very exciting – to circumvent trafficking that has gone awry or been affected by a genetic defect and to manipulate thing like cytokines in a whole bunch of diseases. "Paul was one of the first people that I started collaborating with when I came back to Australia – I knew of him already because he was one of the few people here with Golgi as a key word associated with their name. It has been a particularly enjoyable and successful collaboration."

...And crazy people from around the world (in Stow's lab)...

The collaborative camaraderie and respect that Stow engenders is clearly mutual. According to Gleeson, "Jenny is a passionate advocate and driving force for the field of cell biology in Australia. She is also a very generous collaborator who is extremely willing to share new ideas and approaches – I always enjoy discussing science with her." Another Melbournian and long-time collaborator Christina Mitchell echoes those sentiments. "Jenny is a fabulous collaborator who is at the same time extremely honest and generous. This is a great combination as it means she will always be completely candid about the data and its interpretation, and then help you with her expertise and reagents to improve the story."

Keeping ahead of the pack

Something that Stow has always tried to do in her research is maintain the significance and scientific edge of her group's work, including investing in new technologies and expertise. Her group was one of the first in Australia to take up and promote live-cell fluorescence microscopy in trafficking studies, whereby Stow quickly established a strong reputation and niche for her research. "Fluorescence imaging, especially of live cells and organisms has made it possible to really see and understand many cell processes that previously could only be inferred from 'test tube' experiments," Stow explains.

One of Stow's former PhD students, John lock, was responsible for setting up and mastering these new approaches in microscopy using equipment that Stow funded and brought to the IMB. It was Lock's work that established the recycling endosome as a novel route for post-Golgi exocytic trafficking to the cell surface. He is now a postdoctoral fellow at the Karolinska Institute in Stockholm, being recruited particularly for his microscopy knowledge and technological expertise. He credits Stow's forward thinking attitude in research for guiding his own career path. "I worked with Jenny for 6 years, as an undergraduate and then postgraduate student. I came to realise that what sets her apart from other scientists is her highly attuned strategic sense," Lock says. "Jenny was consistently aware of developing trends, and set about recruiting people and assembling capabilities to preempt these trends and stay in front of the pack. In the competitive environment of biological research, the ability to switch from the day to day minutia of research challenges to a strategic overview of important questions and powerful techniques is an enduring and vital talent that Jenny has in spades. It is also a living lesson from which her students can benefit immensely."

Stow takes her mentoring role in science very seriously and in turn gets a lot of reward from it. She consciously tries to impart the same sort of enthusiasm and awe of research to her own students and postdocs that she gained from her earlier training years, especially the importance of basic research that became part of her psyche at Yale and Harvard. "To make the biggest changes in medicine we have to make the biggest discoveries at the most fundamental level…and so while we work on very basic biology, its relevance to cancer, inflammation and other diseases is something that should never be far

from what we want out of the work and from what it is really designed to do." She also offers some advice to any scientist just starting out on the road – "Be savvy about science – it's your business and you have to know how it works. Learn everything you can from those around you at every step in your career."

Taking up the lead and the challenge

These days Stow has to be particularly savvy about science herself with her dual leadership role as the head of a research group and Deputy Director of the IMB. "Actually, I don't think many people become scientists because they want to be a 'boss'," she says when asked about these roles. "It's the sort of thing that you wake up one day and find has happened to you. However, although it means a lot more red tape and a lot less looking down microscopes, it does give you the opportunity to tackle increasingly big and complex questions in science and to influence research on a larger scale." Stow adds that she certainly did not plan the Deputy Director move, but having been invited to take up the challenge, is attracted by the prospect of have an even broader impact on science - coming from the whole institute - than she could from her own research lab. "Again, I have looked back to my training years and the inspiration I took from the many people I encountered who could do things like this…take a whole institute like the IMB and really make it hum. That is my challenge."

In short, Stow has no regrets about her very early career-plan hiccup. "I love doing science as a career - doing something that is for the good of humanity, being in awe of nature, looking down a microscope at cells, having something to think about ALL the time and, most of all, working amongst a melting pot of interesting, smart, dedicated and crazy people from around the world (and that is just in her group)." What really keeps Stow going though is what she calls her 'main' job…that is, as a "dotty and doting wife and mother" to Doug, their son Nick and to several other, furry 'children', who together, complete her big picture.

Fiona Wylie

ANZSCDB Young Investigator Award

A/Prof. Katharina Gaus

Centre for Vascular Research

University of New South Wales

KAT GAUS

Pushing the boundaries is all in a day's work

Advances over the past decade have pushed the spatial resolution of light microscopy to the limits of optical diffraction, according to the laws of physics. Now, the so-called "super-resolution" techniques are going around these theoretical limits into the sub-micron range, and in Australia, no comprehensive discussion of super-resolution microscopy is complete without mentioning this year's ANZSCDBI Young Investigator Award winner, Associate Professor Katharina Gaus.

Gaus heads the Cellular Membrane Biology Lab in the Centre for Vascular Research (CVR) at UNSW. According to the website, her scientific quest is "to determine how specialised membrane domains organise signalling pathways." The main tool of choice for Gaus in this quest is microscopy, from simple fluorescence to a very sophisticated level with the new super-resolution techniques, which her group was the first in Australia to adopt. "To understand how the organisation of a membrane affects a certain process we have to actually image it as it is happening, and this makes high-resolution fluorescence microscopy the way to go."

Gaus started her life in science doing undergraduate mathematics and physics at the University of Heidelberg in Germany. However, she was soon heading further afield – to Cambridge University in the UK as an exchange student - and found herself making the switch to a more biological focus. "I discovered

that maths and physics were a little bit too dry for me – my real fascination was always with the building blocks of life." Of course, it is hard to shake the past, and Gaus admits that her early academic background carries through to today and is extremely useful as she studies cell biology using biophysical techniques.

Gaus stayed on in Cambridge to do a Masters and PhD at the Institute of Biotechnology. During this time, she designed and developed a biosensor that could detect protein-protein interactions and a ligand library to look for lipoproteins as a diagnostic tool. "This was a fantastic project for me because it introduced me to many different aspects of cellular biology, and also to lipid-protein interactions. From then on, I became interested in the fundamental principles of how cells behave and how lipids play a role in that."

Moving to Australia happened 10 years ago when Gaus won a German postdoctoral fellowship to join the group of Wendy Jessup at the Heart Research Institute in Sydney. There she took on her "first real cell biology project", looking at lipid metabolism in macrophages. Two years later, Gaus successfully applied for an ARC grant and a postdoctoral fellowship, and away she went. It was also around this time that Gaus moved with Jessup's group to UNSW to join the Centre for Vascular Research (CVR).

Out on her own

In 2005, Gaus set up her own membrane biology group within the CVR after receiving a Career Development Award from the NHMRC, progressing to Senior Research Fellow in 2009. She is currently a chief investigator on several national and international grants including a 3-year grant from the Human Frontier Science Program to look at the structure and function of olfactory receptor neurons.

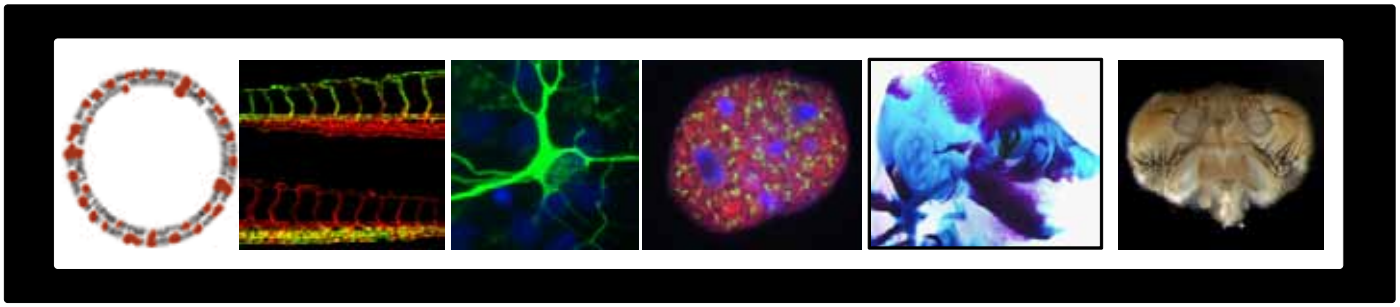
A current focus for Gaus is trying to understand how lipids and particularly dietary lipids affect T cell signalling during an infection, so linking immune dysfunction and obesity. "We think that we have worked out these molecular mechanisms in T cells in the laboratory, and are now taking it to an animal model. So, we feed mice a high-fat diet, take the T cells and basically look at them – and it seems that signalling processes are compromised."

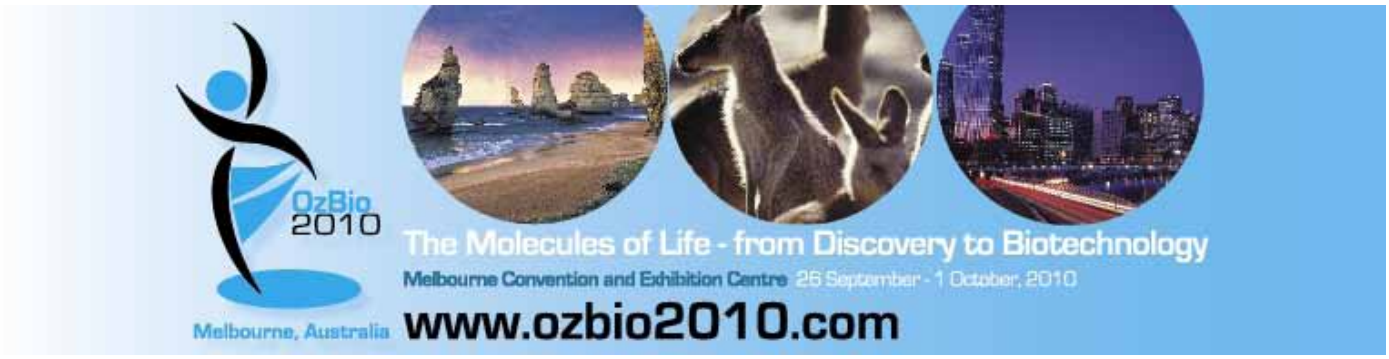
"The work on basic membrane biology and specifically, how lipids modulate the behaviours of signalling proteins continues. We still don't fully understand how membrane organisation affects the efficiency of signal transduction," Gaus says. "We have set up single-molecule imaging techniques to really get a handle on the molecular steps involved." The super-resolution optical microscope that Gaus has in her lab is a PALM system (photoactivation localisation microscopy) developed by Zeiss. "By building up an image literally molecule by molecule, we can 'simply' count how many molecules take place in a signalling event and ask a whole new set of questions like is there a fixed ratio of receptors to kinases and how do lipids interfere with this delicate balance."

In terms of future goals, Gaus remains driven by understanding how a signalling cascade that has up to 100 proteins involved can be coordinated by something as simple as a membrane bilayer, and then to come up with some way of describing that process in its entirety rather than one protein at a time. "In a way we are looking for a new language to describe signal transduction. The model that I envisage of 'seeing' the cascade will obviously have to be based on empirical data and then driven by the intermolecular interactions…and our microscopy techniques will help us to quantify these interactions. So, if we understand how molecules behave, we can then zoom out to see it all in time and space."

"In a nutshell, my work really spans anything from the mathematical modelling of conceptual frameworks to single-molecule imaging to teach us about cell biology…and all for the end-of-life type aim of understanding the medical implications of obesity on T cell function"…easy!!

Fiona Wylie





OzBio2010 – Program at a glance (subject to change)

Sunday
3pm-7pm — Registration

Monday
-am

Registration & Opening (10.00 am)

Plenary
- Peter Doherty (Aust)

Plenary
- Richard Harvey (Aust) — *ASBMB Lemberg Medal*
- Julian Schroeder (USA) — *Annals of Botany Lecture*

Lunch & Posters

-pm

Symposia 1

Stem cells & differentiation	Organelles	Plant membrane biology	Proteomics	RNA processing	Signaling across membranes
K. Loveland/A. Perkins	*T. Lithgow/K. Truscott*	*M. Gilliham/S. Tyerman*	*A. Purcell*	*A .Fox/P. Lewis*	*M .Parker/T. Rapaport*
Amander Clark (USA)	Heidi McBride (Canada)	Steve Tyerman (Aust)	Victor Englehard (USA)	Angus Lamond (USA)	Angel Lopez (Aust)
Huck Hui Ng (Hong Kong)	Naoko Imamoto (Japan)	Yong-Ling Ruan (Aust)	TBA	John Mattick (Aust)	Steven Petrou (Aust)
Gary Hime (Aust)	+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	Paul Foster (Aust)	TBA
+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	Peter Boag (Aust)	+Selected from abstracts

Symposia 2

Abiotic stress: drought & salinity	Cellular imaging	Current advances in neural regeneration	Emerging technologies in systems biology	Immunology	Signaling
R. Munns /M. Tester	*L. Tilley/B. Marsh*	*J. Vickers/S. Dunlop*	*S. Forrest/G. Spangenberg*	*B. Heath/R. O'Heir*	*N. Harvey/T. Pawson*
John Mullet (USA)	Sam Hess (USA)	James Fawcett (USA)	Edward Bertram (Aust)	Chris Goodnow (Aust)	Ralf Adams (Germany)
Stuart Roy (Aust)	Brad Marsh (Aust)	Lindy Fitzgerald (Aust)	Sean Grimmond (Aust)	Fabienne Mackay (Aust)	Ben Hogan (Aust)
Lynne McIntyre (Aust)	Cynthia Whitchurch (Aust)	Tracey Dickson (Aust)	TBA	Lauren Ely (USA)	Leigh Coultas (Aust)
+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	Charles Mackay (Aust)	+Selected from abstracts

Welcome Mixer

Tuesday
-am

Plenary
- Elisa Izaurralde (Germany) — *FEBS Lecture*
- Noboru Mizushima (Japan)

Plenary
- Tom Rapaport (USA)
- Nancy Bonini (USA)

Symposia 3

Apoptosis	Cytoskeletal networks	Plant genetics	Protein misfolding & neurodegeneration	Protein-protein interactions	The transcriptome
R. Kluck/C. Hawkins	*A. Yap/E. Hardeman*	*P. Langridge/P. Gresshoff*	*J. Gotz/N. Bonini*	*M .Lawrence/U. Hartl*	*K.K. Khana/T. Gonda*
Richard Youle (USA)	Ueli Aebi (Switzerland)	Scott Jackson (USA)	Kevin Barnham (Aust)	Manajit Hayer-Hartl (USA)	Huck Hui Ng (Hong Kong)
Ruth Kluck (Aust)	Jake Baum (Aust)	Tim Sutton (Aust)	Lars Itner (Aust)	Natalie Borg (Aust)	Frances Shannon (Aust)
Sharad Kumar (Aust)	Greg Goodall (Aust)	Brett Ferguson (Aust)	Robert Richards (Aust)	TBA	Merlin Crossley (Aust)
+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	David Small (Aust)	+Selected from abstracts	+Selected from abstracts

Lunch & Posters

-pm

Symposia 4

Bioinformatics	Education	Epigenetics & small RNAs	Metabolic disease	Organogenesis & regeneration	Signaling at the synapse	Understanding enzymes
J. Whisstock/M. Bellgard	*H.E. Koon/S. Howitt*	*P. Waterhouse/T. Millar*	*D. Thorburn/G. Cooney*	*M. Little/D. Newgreen*	*P. Beart/N. Ip*	*B. Kemp/A. Vrielink*
Milton Saier (USA)	Masatomo Maeda (Japan)	Marc Bots (Belgium)	Mary-Ellen Harper (Canada)	Helen MacNeil (Canada)	Nancy Ip (Hong Kong)	Ivan Rayment (USA)
Ashley Buckle (Aust)	Peter Cartwright (Aust)	Jean Finnegan (Aust)	TBA	Kieren Harvey (Aust)	Eric Klann (USA)	John Whitehead (Aust)
+Selected from abstracts	TBA	Julian Tonti-Filippini (Aust)	TBA	TBA	Ype Elgersman (Netherlands)	Paul Attwood (Aust)
+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	John Rostas (Aust)	Hazel Holden (USA)

Symposia 5

Autophagy	Drug discovery & design	Host-pathogen interactions	Secretory pathway	Plant energy biology	Genes, development & disease	Translation
R. Devenish/ N. Mizushima	*I. Street/H. Blanchard*	*R. Andres/H. Drummer*	*J. Stow/R. Murray*	*S. Smith/B. Pogson*	*P. Koopman/C. Smith*	*R. Hannon/J. Wilce*
Sharon Tooze (UK)	Billy Denny (NZ)	James Paton (Aust)	Frances Brodsky (USA)	Ian Graham (UK)	TBA	Elisa Izaurralde (Germany)
Richard Youle (USA)	Graeme Stevenson (Aust)	Andy Poumbourios (Aust)	Len Kritharides (Aust)	Bob Furbank (Aust)	Craig Smith (Aust)	Tom Preiss (Aust)
Mark Prescott (Aust)	Ashley Bush (Aust)	Alex Maier (Aust)	Peter Thorn (Aust)	TBA	Carol Wicking (Aust)	Rick Pearson (Aust)
+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	+Selected from abstracts	+Selected from abstracts

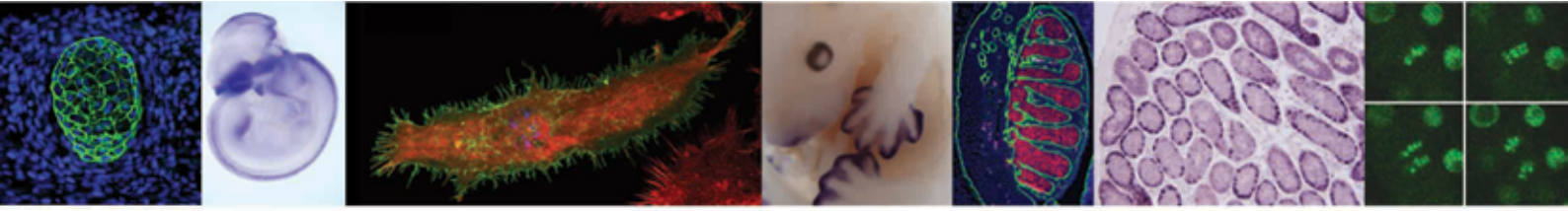
Happy Hour

Wednesday
-am

Plenary
- ANZSCDB President's Medal & Lecture (TBA)
- ASPS Peter Goldacre Award & Lecture (TBA)

Plenary
- Greg Winter (UK) — *Biochemical Society/ASBMB Lecture*
- Evan Eichler (USA)

Colloquia	Biotechnology Selected from abstracts	Cell biology & development Selected from abstracts	Gene regulation Selected from abstracts	Plant systems Selected from abstracts	Protein structure & function Selected from abstracts	Signaling & disease Selected from abstracts
Lunch & Posters						
-pm						
Plenary	Andrew Hill (Aust) *ASBMB Merck Medal Lecture*	RN Robertson lecture (TBA)				
Symposia 6	Antibody & protein engineering *D. Christ/G. Coia* Lutz Jermutus (UK) Greg Winter (UK) George Kospidas +Selected from abstracts	Molecular biology of cancer *A. Strasser/V. Dixit* Shigekazu Nagata (Japan) Andreas Strasser (Aust) John Silke (Aust) +Selected from abstracts	Nutrition & health *D. Topping/S. Jobling* Matthew Morell (Aust) David Topping (Aust) Melissa Fitzgerald (Philippines) +Selected from abstracts	Membrane dynamics *R. Parton/K. Gaus* Robert Nabi (USA) Daniel Abanka (Aust) Matthew Prior (Aust) +Selected from abstracts	Stress signaling *J. Atkin/T. Biden* Randal Kaufman (USA) Julie Atkin (Aust) TBA +Selected from abstracts	RNAi *R .Dickins/K. Simpson* Rod Bejersbergen (Netherlands) Patrick Humbert (Aust) Darren Saunders (Aust) +Selected from abstracts
Thursday						
-am						
Plenary	Chris Somerville (USA)	Brenda Schulman (USA)				
Plenary	Ulrich Hartl (Germany)	Vishva Dixit (USA)				
Symposia 7	Dynamic subcellular compartments *T. Preiss/E. Izaurralde* Archa Fox (Aust) David James (Aust) Kat Gaus (Aust) +Selected from abstracts	Neural signaling & development *L. Richards/K. Kaibuchi* Kozo Kaibuchi (Japan) Chinfei Chen (USA) Ben Emery (Aust) +Selected from abstracts	Patterning & morphogenesis *S. Dunwoodle/L. Niswander* Lee Niswander (USA) Ruth Arkell (Aust) Heather Young (Aust) +Selected from abstracts	Plant-microbe interactions *P. Dodds/B. Howlett* Shauna Somerville (USA) Maud Bernoux (Aust) John Rathjen (Aust) +Selected from abstracts	Protein-nucleic acid interactions *M. Wilce/J. Matthews* Carlos Barbas (USA) Charlie Bond (Aust) Bridget Mabbutt (Aust) +Selected from abstracts	Ubiquitin and Ub-like modifications *S. Kumar/B. Schulman* David Komander (UK) Catherine Day (NZ) Sandra Nicholson (Aust) +Selected from abstracts
Lunch & Posters						
-pm						
Plenary	Johann Deisenhofer (USA)	Lee Niswander (USA)				
Symposia 8	Haematopoiesis: systems approaches *B. Kile/R. Ramsay* Harvey Lodish (USA) Doug Hilton (Aust) Carola Vinuesa (Aust) +Selected from abstracts	Functional genomics *F. Shannon/L. O'Connor* Tom Gonda (Aust) Barry Pogson (Aust) TBA +Selected from abstracts	Plant development *J. Bowman/E. Newbigin* David Smyth (Aust) Christine Beveridge (Aust) Anna Koltunow (Aust) +Selected from abstracts	Proteins: life & death *B. Mabbutt/M. Hinds* TBA TBA TBA +Selected from abstracts	Reproduction & embryonic development *D. Gardner/J. Rathjen* Paul Robson (Singapore) TBA TBA +Selected from abstracts	Subcellular targeting *D. Jans/N. Imamoto* Yoshihiro Yoneda (Japan) Shige Noshimura (Japan) Beric Henderson (Aust) +Selected from abstracts
	Society Annual General Meetings Conference dinner					
Friday						
-am						
Plenary	Tony Pawson (Canada)	Peter Waterhouse (Aust)				
Symposia 9	Biomarkers *N. Hoogenraad/B. Cocks* Richard Simpson (Aust) Tim Green (Aust) TBA +Selected from abstracts	Cell architecture & polarity *S. Russell/N.Waterhouse* Minoru Yoshida (Japan) Wolfgang Weninger (Aust) Megan Fabbro (Aust) +Selected from abstracts	Peptides & neural function *M. Morris/A. Gundlach* Alon Chen (Israel) Gavin McNally (Aust) Margaret Morris (Aust) +Selected from abstracts	Shedding light on biology: Aust Synchrotron *N. Cowieson* Matt Wilce (Aust) TBA TBA TBA	Stone wall symposium *G. Fincher/F. Pettolino* Chris Somerville (USA) Vincent Bulone (Sweden) Mike Gidley (Aust) +Selected from abstracts	Yeast biology *A. Munn/I. Dawes* Charlie Boone (Canada) Marc Wilkins (Aust) Snezhana Oliferenko (Singapore) +Selected from abstracts
Plenary	Harvey Lodish (USA) *IUBMB Ed Wood Lecture*	Jian-Kang Zhu (USA)				
	Awards & close of main program (1pm)					
-pm						
Special Workshops (2-6pm)	Biotechnology Speakers: TBA	Careers Speakers: TBA	Education: Enquiry-based learning Speakers: Trevor Anderson (Sth Africa); Pauline Ross (Aust); Kristine Elliott, Helen Irving (Aust), Liz Johnson (Aust); Janet Macauley (Aust)	Super-resolution microscopy Speakers: Sam Hess (USA); Guy Cox (Aust); Cynthia Whitchurch (Aust); Trevor Smith (Aust); Kat Gaus (Aust); Leann Tilley (Aust); Min Gu (Aust)		



October 22
2010
9 - 5:30pm

Brisbane Cell & Developmental Biology Meeting

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

Professor Stephen Cohen, Temasek Life Sciences Laboratory
Exploring growth regulation and metabolism

Professor Jeff Hardin, University of Wisconsin
Mechanisms of Morphogenesis

Dr Ian Smyth, Monash University
Developmental Biology of the Skin

6 postdocs and 6 PhD students will be chosen from abstracts to present a 15 minute talk: PRIZES WILL BE AWARDED TO THE BEST TALKS AND POSTERS

please submit abstracts of up to 200 words by **September 10th** to either:

Dagmar Wilhelm: d.wilhelm@imb.uq.edu.au
Eva Kovacs: e.kovacs@imb.uq.edu.au
Kelly Smith: k.smith@imb.uq.edu.au

Registration is FREE - please do so by emailing Dagmar, Eva, or Kelly

Refreshments and prizes provided by our sponsors: for further information please visit www.imb.uq.edu.au-bcdbm

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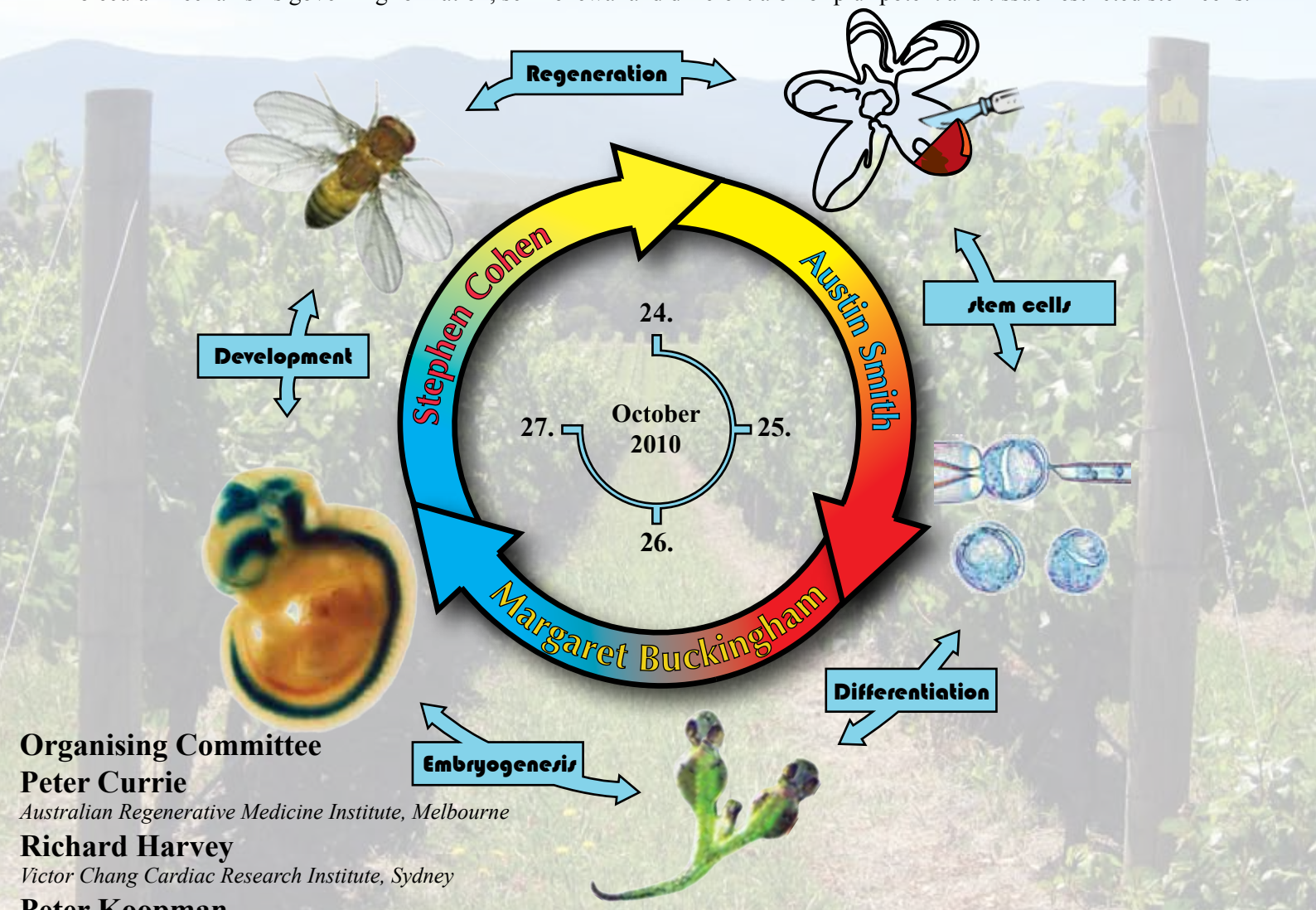
6th Australian Developmental Biology Workshop
Yarra Valley, Vic. 24th-27th Oct. 2010.

Guest Speakers:

Margaret Buckingham (Institute Pasteur, France)
An expert in the application of mouse biology to dissection of genetic control of skeletal and cardiac muscle formation. Her laboratory has identified key regulatory genes and cellular processes that act in muscle development.

Stephen Cohen (Institute of Molecular and Cell Biology, A*Star, Singapore)
A renowned Drosophila developmental geneticist, who undertook ground-breaking studies in the field of microRNAs with universal impact on understanding gene regulation.

Austin Smith (Wellcome Centre of Stem Cell Research, University of Cambridge, U.K.)
A world leader in the area of embryonic stem cell research. His laboratory has characterised many of the cellular and molecular mechanisms governing formation, self-renewal and differentiaion of pluripotent and tissue-restricted stem cells.



Organising Committee

Peter Currie
Australian Regenerative Medicine Institute, Melbourne

Richard Harvey
Victor Chang Cardiac Research Institute, Sydney

Peter Koopman
Institute for Molecular Bioscience, Brisbane

Rob Saint
The University of Melbourne

Patrick Tam
Children's Medical Research institute, Sydney

design by J. Berger

The aim workshop aims to promote Developmental Biology by providing students and scientists that are activelyworking in this research field with the chance to gain knowledge and practical skills. It is an intimate and highlyinteractive meeting that allows unparalleled access to world leaders in Developmental Biology for scientists at all levels of their career.

The workshop will consist of in-depth plenary research talks by high profile international speakers, round table discussions on experimental approaches, analysis of model systems, and broad career issues for Developmental Biologists. The number of participants is strictly limited to 24. A mix of students, post docs, and lab leaders will be selected on the basis of their demonstrated interest in Developmental Biology, track record, and the perceived benefit they will obtain from the workshop.

Applications must consist of the applicant's CV (max three pages) and a one page cover letter addressing the above criteria.
Please email your application to applications@armi.monash.edu.au. Applications close 31 July 2010.
For further information visithttp://www.armi.org.au/About_Us/news/Whats_On/devbiowkshp.aspx

WHEN DECEMBER 11–15, 2010

WHERE Philadelphia, PA
Pennsylvania Convention Center

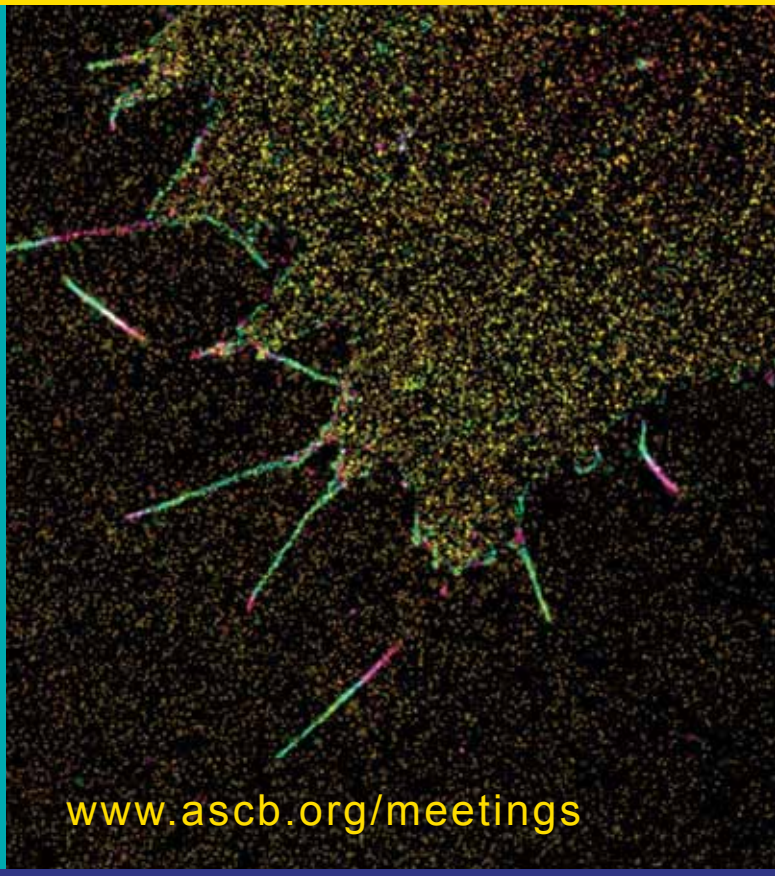
DON'T MISS IT!

THE AMERICAN SOCIETY FOR CELL BIOLOGY 50TH ANNUAL MEETING

WHY
- Showcases the **most exciting cell biology research**
- Offers **scientific breadth, depth**, and multiple discussion opportunities
- Provides tested **teaching strategies** you can use today
- Builds careers with sessions on **funding, job options, strategies, networking**, and more

WHAT
- Learn about Improving Cancer Chemotherapy
- Investigate Cytoskeletal Dynamics
- Consider Cell Biology to Therapeutics
- Explore In Vivo Imaging

HOW
- **Submit your abstract** for poster or oral presentation consideration by July 29
- **Suggest a member-organized special interest subgroup** by July 29
- **Apply for travel and childcare awards** by September 1
- **Take advantage of discounted registration fees** by October 7



All meeting forms and special hotel rate information will be available on the ASCB website,www.ascb.org/meetings. Or email ascbinfo@ascb.org or call 301-347-9300. The ASCB is *your* community, sharing your values. **JOIN US!**

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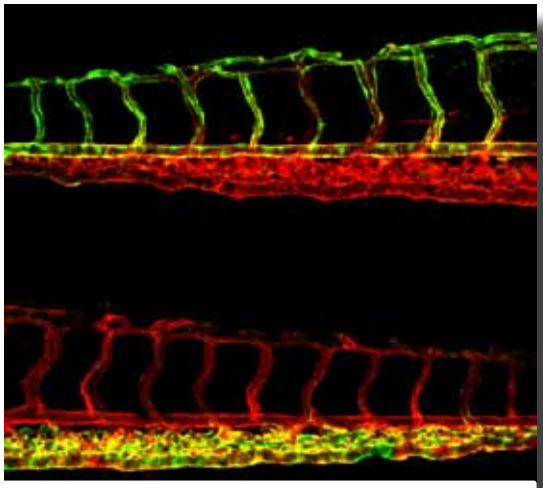
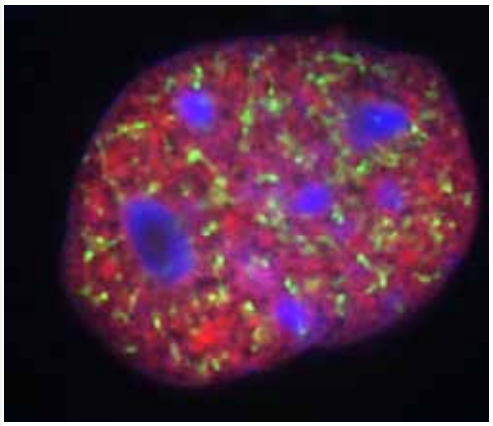
* See the website below for more information

www.adelaide.edu.au/mbs/prospective/pg/visit

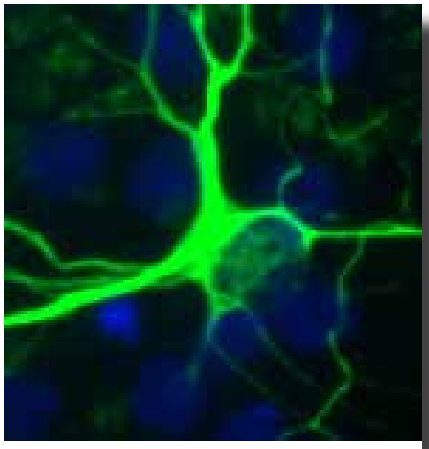
Winners of the "Call for Images for the Website"



1 Benjamin Hogan
Molecular Genetics of Vascular Development Unit
Institute for Molecular Bioscience, The University of Queensland
Description: Composite of two live, double transgenic zebrafish tails with complementary fluorescent labeling of embryonic arteries and veins.



3 Jocelyn Widagdo
Neuromuscular & Regenerative Medicine Unit
School of Medical Sciences, The University of New South Wales
Description: Nuclear localisations of the Williams Syndrome-related protein, GTF2IRD1 (green) and a histone lysine methyltransferase (red) were analysed by co-expression in COS-7 cells (DAPI, blue). GTF2IRD1, our protein of interest, was shown to interact with the histone lysine methyltransferase through a yeast library screen, implicating GTF2IRD1 in histone/chromatin remodelling and suggesting a possible mechanism for pathologies of Williams Syndrome, a human neurodevelopmental disorder.



2 Dana Bradford
Neural Migration Laboratory
Queensland Brain Institute, The University of Queensland
Description: Cultured from the neurogenic region of the adult mouse brain, this differentiated neurosphere is stained to show cell nuclei (DAPI, blue) and immunolabeled with a marker for early neurons (TuJ1, green) showing new neurons sending out processes to explore the environment.

4 Vicki Metzis
Developmental Genes and Human Disease Unit
Institute for Molecular Bioscience, The University of Queensland
Description: Skeletal preparation of a prenatal mouse embryo showing the bone (Alizarin Red) and cartilage (alcian blue) of the craniofacial skeleton.

5 Felix Grusche
Cell Cycle & Development Unit
Peter MacCallum Cancer Centre,
Description: The Salvador-Warts-Hippo (SWH) pathway controls tissue growth during development. Partial loss of Expanded in Drosophila, a negative regulator of the SWH pathway, results in tissue overgrowth and the transformation of some eye tissue into excess cuticle and hairs.

Reports

16th NSW Cell and Developmental Biology Meeting

THOMAS FATH and BILL PHILLIPS

This year the 16th Annual New South Wales Cell Developmental Biology Meeting was held as a jointly sponsored meeting by ANZSCDB and ASBMB at the University of New South Wales. The meeting focused on Systems Biology and Cell Polarity and was very well received with over 100 attendees from universities and institutes within NSW and the ACT, and we especially welcomed the attendance by Alpha Yap, former President of ANZSCDB and convenor of the 2010 Hunter Cell Biology Meeting. We were delighted that Ed Munro from the University of Chicago could join us as plenary speaker at this year's meeting whose talk entitled "Dynamics of cell polarization in C. elegans: Models and experiments" reflected an impressive comprehensive approach to cell polarity utilizing fundamentals of developmental biology, cytoskeletal dynamics and mathematical modeling. Ed's participation in this meeting was made possible by the ANZSCDB as part of their visiting fellows program that sponsors an international plenary speaker at the Hunter Cell Biology Meeting with associated visits to institutions within Australia. Invited plenary speakers Miles Davenport (Centre for Vascular Research, Lowy Centre, UNSW) gave a challenging introduction to Systems Biology by discussing the dynamics of chronic and acute infectious diseases in his talk entitled "Complex Systems – from the molecule to the disease" and Patrick Humbert (Peter MacCallum Cancer Centre, Melbourne) shared his latest research outcome from a large scale RNAi screen on polarity genes with us in his talk entitled "Building tissues and moving them: Cell polarity genes in migration and invasion". Further talks were given by Vladimir Sytnyk (School of Biotechnology and Biomolecular Sciences, UNSW) and PhD students and postdocs from institutions around Sydney including the Victor Chang Cardiac Research Institute, the Children's Medical Research Institute, the Children's Cancer Institute Australia for Medical Research, the University of Sydney, the Centre for Vascular Research and the University of New South Wales. For the first time prizes for the best PhD and postdoc presentations were introduced which were sponsored by ANZSCDB and ASBMB. The ANZSCDB prize for best PhD presentation was awarded to Nikki Curthoys (UNSW/USyd) and the best postdoc prize to Romaric Bouveret (Victor Chang Cardiac Research Institute). We also want to thank Invitrogen and Qiagen for their generous and continued support of the meeting.

Thomas Fath and Bill Phillips

2010 Science meets Parliament

ALEKSANDRA FILIPOVSKA

On March 9th and 10th the Federation of Australian Scientific and Technological Societies (FASTS) held the 11th Science meets Parliament (SmP) in Canberra. Marie Bogoyevitch and I attended as representatives of ANZSCDB and had the opportunity to participate in a range of workshops and debates on the importance of science representation in parliament and government. This was the first time I had heard of FASTS, which is an organization formed 25 years ago because it was felt that the voices and opinions of scientists were lacking in government. The main consensus over the years was that there was a language barrier between scientists and government officials; the scientists use jargon and too much detail and the government officials are interested in immediate outcomes that would positively affect their imminent need for re-election. One of the ways FASTS facilitates the communication between science and government is by organizing an annual two-day SmP meeting. During the first day the scientists take part in a series of workshops that coach them to communicate their concerns and thoughts to parliamentarians during their meetings which take place on the second day of SmP.

Delegates gather at the Great Hall, Parliament House, for dinner with MPs and science representatives.

Even at the start of the meeting it was obvious to most of us scientists that voicing our concerns about the current state of science to government representatives was going to be challenging. We were quizzed on our understanding of the structure of government and the role of different government departments, the Australian people and the media, which was perceived very differently by most groups. We had media presentations from television, radio and newspaper journalists and gained more insight into how

news is delivered to the public. During this presentation it was highlighted that there is a need for individuals who can bridge the communication gap between scientists and the public, and the media could be a potential facilitator in this process. Although there are many journalists that are interested in taking on such positions, the scientists had concerns about the sensationalism aspect of the media that often misrepresents the scientific discoveries to the public. The debate between the scientists and the journalists was like a tug of war. The scientists maintained that without the science there would not be any stories; however, the journalists pointed out that without them scientific discoveries would go unnoticed and as a consequence the government will not be aware of the progress and significance of scientific discoveries.

Delegates meet Senator Kim Carr, Minister for Innovation, Industry, Science and Research

Delegates of SmP2010

Our main concern as scientists was engaging the parliamentarians in our research interest with the ultimate goal of supporting scientific endeavour and basic research. We were advised by several government officials, public servants and political advisors with a wealth of experience in dealing with politicians in three different workshops. The main message that came from all of them was to maintain the interest of the senators and members of parliament by having a succinct story with a practical outcome. We had an hour to practise our pitch for the parliamentarians after which we were taken to Parliament for our dinner, which gave us the opportunity to chat informally to some of the government officials. The following day included meetings with members of Parliament and senators. I had a meeting with an MP from the Liberal party from Western Australia who had an interest in biomedical research and supporting women in science. We discussed the need to maintain a vigorous, innovative and competitive research environment, which depends on encouraging talented people to enter science professions, but more importantly to keep them in their positions by providing job security. We discussed the need to support basic research, which has been the most reliable source of knowledge that has led to important discoveries, furthered technology and medicine, which ultimately leads to economic growth, sustainability and leadership.

The lunchtime meeting at the National Press Club was one of the highlights of SmP. The keynote speaker was the author and science writer Chris Mooney who gave a realistic view of the state of science in the United States. He discussed the need for scientists to speak out and put an end to anti-scientific campaigns spurred on by misinformed members of the public. Perhaps the most important message that came from him was that scientists don't need to sacrifice their integrity to counter the misinformation that floods the media daily.

The SmP experience was very interesting and gave me an insight into how science and research are seen by the government and our public representatives in Parliament. The FASTS is very well organised and run by committed board members and executives. The main goals of FASTS and the SmP meetings are to reinforce the idea that we as scientists have to tailor our messages according to the different audiences if we want our voices to be heard, much like the politicians when they need our votes.

Aleksandra Filipovska
Western Australian Institute for Medical Research
Photo credits: Lorna Sim/FAST

Student members to attend the 60th Meeting of Nobel Laureates in Lindau, Germany

Congratulations to Duncan Mortimer (Queensland Brain Institute) and Denise Miles (Murdoch Childrens Research Institute) for being chosen to attend the 60th meeting of Nobel Laureates in Lindau, Germany from June 27 to July 2, 2010. As a corresponding society of the National Committee for Biomedical Sciences of the Australian Academy of Science, the ANZSCB Executive was able to nominate postgraduate member applicants to be considered for this honour. The Council for Lindau Nobel Laureate Meetings then selected 13 candidates from all corresponding Academies of Science with an even representation across the disciplines of Medicine or Physiology, Chemistry and Physics. Prior to the Lindau meeting, Duncan and Denise will attend Science at the Shine Dome, the annual celebration of science held at the Academy of Science, Canberra, 5-7 May 2010. Expenses are paid by the Australian Academy of Science and the Lindau Committee. Well done!

(taken from http://www.science.org.au/internat/lindau.html)
The 2010 meeting of Nobel Laureates in Lindau is a multi-disciplinary meeting dedicated to chemistry, physics and medicine or physiology. With the support of the Academy, thirteen of Australia's brightest early-career researchers will be attending the meeting to be held in Lindau Germany, from 27 June to 2 July. The group will be accompanied by Professor Kurt Lambeck FAA. Not only will this meeting provide the participants with the opportunity to meet and hear from Nobel laureates, it will also provide a fantastic opportunity for our early-career researchers to meet, discuss ideas and to potentially form beneficial relationships with peers from across the globe.

Initiated in 1950 as a European conference of leading scientists in medicine, the guiding principle of the first Lindau Congress of Nobel Laureates was to encourage international scientific dialogue with Nobel Laureates. The first congress of medical specialists has since evolved into open-minded encounters between Laureates, young researchers and students in other fields of the natural sciences: for over half a century now, Nobel Prize winners in medicine/physiology, chemistry and physics convene, alternating, for one week at the end of June each year at Lindau, Germany.

Usually about twenty Nobel Prize winners attend, to share insights into their life's work and to interact with 600 outstanding young researchers and graduate students from around the world (up until now mainly from Western Europe, but increasingly in recent years from the USA, Central America, Latin America, Asia, the Middle East, Russia, Eastern Europe Africa and Australia).

In line with the initiators' concept of building bridges between nations and cultures, the Lindau forum offers the upcoming generation of scientists an opportunity to instigate and foster what can be called a 'Dialogue among Cultures', both on scientific issues and on a more peaceful future. The bridges they build have a lasting impact beyond the Meetings. In the course of their personal encounters, participants jointly develop new ideas, and create networks of cooperation and international friendship, to the benefit of scientific progress.

Left: Duncan Mortimer (Queensland Brain Institute)
Right: Denise Miles (Murdoch Childrens Research Institute)

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The Hunter Meeting

ALPHA YAP

The 10th anniversary edition of the Hunter Meeting was held in the bucolic surrounds of the Sebel-Kirkton Park between March 16 and 19th. As in earlier editions, the aim of the meeting was to provide a forum for cutting edge work in the country (both through presentations and informal discussions) and a dialogue with international experts (a record 11 invited speakers this year). Preceded by an afternoon-long workshop on Imaging, the main meeting began with the now-traditional Keith Stanley Lecture. In her lecture, Sandy Schmid (Scripps Institute) provided a stirring overview of her decades-long efforts to understand the molecular and cellular basis of endocytosis. Illustrating the inter-disciplinary philosophy of the Hunter Meeting, Schmid outlined how her research has moved freely between cellular and detailed structural mechanisms. It provided a scintillating start to the whole meeting, some of the highlights of which are now summarized by the session chairs.

Biology/pathology of the vascular system.

Like many others in the meeting, this session featured a series of complementary talks from different disciplines. Martin Schwartz (University of Virginia) spoke about the mechanical forces that are generated within endothelial cells and how such forces are transduced in vascular biology. In a tour de force of state of the art of cell biology his talk showcased a number of novel approaches to assay intracellular forces using protein sensors of force and imaging techniques. Richard Harvey (The Victor Chang Cardiac Research Institute) spoke of his evaluation of stem cells in the mouse heart. He detailed an interesting vascular-associated cell type, which demonstrated clonability and the ability to generate cardiospheres in vivo, that shared many characteristics with pericytes, but potentially acted as a pericyte progenitor population. Ben Hogan (IMB Queensland) talked on the use of zebrafish to study development of the lymphatic system. He detailed an interesting zebrafish mutant that disrupted the ccbe1 gene, which he also showed was mutated in a human lymphatic disease. Madhavi Maddugoda (INSERM, Nice) spoke on the role of membrane dynamics during transendothelial permeability, revealing novel pathways that cells use to regulate membrane dynamics. (Chair: Peter Currie).

Protein transport in health and disease

William (Bill) Balch (Scripps Research Institute, La Jolla) talked about the importance of protein homeostasis (which he calls proteostasis) in health and disease. Bill discussed how the proteostasis network is required for proper protein folding, removal of misfolded proteins and for protein transport. Disruption of the proteostasis network can thus potentially result in disease. He then discussed how small molecules that regulate proteostasis can be useful therapeutics in a wide range of folding diseases. Continuing the protein folding theme, John Bateman (Murdoch Children's Research Institute, Melbourne) discussed the role of endoplasmic reticulum (ER) stress in the pathophysiology of skeletal dysplasia. He presented his elegant studies to show how ER stress, caused by mutant misfolded extracellular matrix (ECM) proteins, contributes to the molecular pathology of disease. Peter Thorn (School of Biomedical Sciences, University of Queensland) then presented his elegant work on granule fusion with the cell membrane using live imaging with 2-photon microscopy and confocal microscopy following tissue fixation. Using various different dyes Peter and colleagues have developed methods to enable identification of whether the fusion pores are open or closed. He showed that secretion is not only regulated by the control of the numbers of fusion events but also by the dynamics of granule fusion itself. Antony Cooper (Garvan Institute of Medical Research, Sydney) talked about the role of synuclein in Parkinson's disease (PD). Synuclein associates with synaptic vesicles, its mutations and allele duplication result in early onset PD and it is the main constituent of Lewy bodies. (Chair: Sharad Kumar)

Quantitative Biology

This session focused on the potential for quantitative and computational approaches to contribute to analysing complex biological phenomena. Ed Munro (University of Chicago) discussed his lab's ongoing efforts to dissect the complex process of endoderm invagination, a key early morphogenetic process in metazoa. Using ascidian embryos, his lab showed that invagination involved complex changes in cell shape, encompassing both apical constriction and shortening of the cell bodies. Computational modelling allowed his group to make testable predictions about the roles of Myosin and Rho signaling in these processes. Geoff Goodhill (University of Queensland) described experimental and computational approaches to studying axonal chemotaxis. Remarkably, axonal growth cones sense very subtle gradients and this is often assumed to involve axonal turning. Instead, he showed that modulation of growth rates may be key when axons respond to shallow gradients. Katerina Gaus (University of NSW) discussed the use of super-resolution imaging and quantitative analysis of signal cluster formation to understand how probabilistic elements contribute to T-cell signaling. (Chair: Alpha Yap)

Ed Munro's participation in the Hunter Meeting was generously supported by the Australia and New Zealand Society for Cell and Developmental Biology. We thank the ANZSCDB for their ongoing support of the Hunter meeting.

Cell division and polarity

This session focused on the regulation of cell proliferation, particularly highlighting the importance of cell polarity regulators and the regulation of the mitotic spindle in cell division. Cayetano Gonzalez (Institute for Research in Biomedicine, Barcelona, Spain) spoke about the importance of the microtubule cytoskeleton in defining the plane of cell division in Drosophila neural stem cells (neuroblasts) of the developing brain. Using sophisticated live cell imaging, he showed how the plane of division was mostly randomized if a microtubule-based cue was disrupted, but when reestablished a new plane of division was established at an axis parallel to the newly born daughter cell. This study revealed a potential role for the newly born daughter as an external cue defining the plane of division. Current research in the Gonzalez lab will focus on determining the developmental consequences of altering the plane of division of the neural stem cells. Kum Kum Khanna (Queensland Institute of Medical Research, Brisbane) discussed the DNA damage checkpoint in mammalian cells, focusing on the critical regulator ATM. Kum Kum also described a novel centrosomal protein (Centrobin) that has a role in stabilizing the microtubule structure and in centrosome integrity during mitosis. Patrick Humbert (Peter MacCallum Cancer Center, Melbourne), described the importance of the polarity regulator, Scribble, in cooperative tumourigenesis with Ras signaling in human epithelial cells and mouse models, particularly focusing on the outcome of a high throughput shRNA screen. Using new generation sequencing and systems biology analysis, this screen revealed novel pathways, including asymmetric cell division regulators, involved in Scribble mediated tumourigenesis in human epithelial cells. (Chair: Helena Richardson)

Signaling and cancer

The presentations in this session approached the problem of understanding cancer from many perspectives. Margaret Frame (University of Edinburgh) gave a wide-ranging talk that encompassed the roles for integrin signaling through Src and FAK; the impact of drug inhibitors on tumor progression and invasion; and the use of intravital imaging to characterize tumor cell invasion and its responsiveness to therapy. Mathias Ernst (Ludwig Institute for Cancer Research, Melbourne) discussed the relationship between inflammatory cytokines and tumor progression, using a range of mouse models that his lab has developed. Sharad Kumar (Center for Cancer Biology, Adelaide) approached the problem from the perspective of regulated cell death. He described studies in Drosophila that identified a caspase-independent autophagic mechanism for regulated cell death in tissues. Finally, Terry Kwok-Schuelein (Monash University) took us back to integrin signaling, to illustrate how this process is co-opted by pathogenic products of Helicobacter pylori, a known risk factor for gastric cancer. (Chair: Alpha Yap)

Building tissues, preserving tissues The session presented us with three quite different approaches to understanding principles of tissue structure. The underlying theme which emerged was the diversity of roles to which the cytoskeleton has been recruited in the process of morphogenesis. Our international speaker, Mark Peifer (University of North Carolina), presented his elegant work using Drosophila to dissect early processes involved in establishing the body plan with particular reference to the role of the cytoskeleton. Patrick Tam (CMRI, Sydney) described the role of WNT signalling in head morphogenesis in the mouse embryo. He also introduced the role of rhou and its effects on the actin cytoskeleton as an important regulator in early embryogenesis. Helena Richardson (Peter MacCallum Cancer Center, Melbourne) returned us to Drosophila and the integrated roles of polarity regulators in controlling decision making during morphogenesis. The session served to emphasise the power of these two developmental model systems and the increased sophistication of experimental approaches to fundamental questions regarding the building of the body plan. (Chair: Peter Gunning)

The EMBO Lecture

A consistent highlight of recent Hunter Meetings has been the plenary lecture sponsored by the EMBO World Programme. 2010 was no exception. This year's EMBO Lecture was presented by Michael Way (London Research Institute, CRUK) who was, indeed, the international speaker at the first Hunter Meeting. Michael gave the meeting a panoramic overview of his lab's work on understanding how cellular biology is co-opted by pathogenic vaccinia viruses. In the process, he illustrated both the ingenious mechanisms that these viruses use to co-opt host machinery, and also how much insight into cellular mechanism comes from studying how pathogens interact with their host cells. We thank the EMBO World Program for their support of the Hunter Meeting. (Chair: Alpha Yap)

Cell origin, cell fate

This session addressed key issues of signaling and cell migration in development. Anna-Katerina Hadjantonakis (Memorial Sloan-Kettering Cancer Center, New York) demonstrated that the gastrulating mouse embryo is no longer refractory to live imaging. Using sophisticated genetic manipulation, ex utero embryo culture and microscopy, her group has shown that the visceral endoderm is dispersed by the addition of definitive endoderm directly from the progenitor epiblast. These findings impact on our understanding of how the digestive and respiratory tracts form. John McAvoy (Save Sight Institute, Sydney) described how planar cell polarity (PCP) signaling polarizes fiber cells of the lens using genetically modified mouse models and lens explants. He showed that the asymmetric distribution of cilia and PCP proteins polarize lens fibers allowing their alignment and orientation to lens poles. Martin Lackmann (Monash Universi-

ty, Melbourne) used fluorescent resonance energy transfer (FRET) and Fluorescent lifetime imaging microscopy (FLIM) to determine how Eph receptors switch from promoting cell-cell adhesion to cell signaling. He demonstrated that the A-Disintegrin-And-Metalloprotease (ADAM) releases Eph receptor ligands and thus provides the switch between cell-cell adhesion and signaling. Importantly, he showed that the membrane-proximal localisation of the latent kinase domain prevents ephrin ligand shedding in trans. Pamela Stanley (Albert Einstein College of Medicine, New York) described the essential role of O-fucose glycans on Notch signaling. Notch signaling is required to direct cell fate during embryonic development, and receptors lacking O-fucose are unable to signal. She discussed how that glycosyltransferase required for O-fucosylation of the Notch receptor also plays a role in chaperoning the receptor to the cell surface. (Chair: Sally Dunwoodie)

We hope that these vingnettes illustrate the diverse scientific range that distinguished Hunter 2010, as it has earlier meetings. They cannot give any sense of the energy and enthusiasm that pervaded the poster sessions, trade meetings, and informal discussions over coffee, hikes, and just sitting in the sun. We hope that you will experience that directly at Hunter 2011 (which will be held from March 22-25, convened by Phil Robinson and Peter Gunning).

ANZSCDB and the International Society for Developmental Biology

In 2009, the ANZSCDB became a member society of the International Society for Developmental Biology. The Executive decided that this elevation in membership status was in keeping with the prominence of Developmental Biology in the Asia-Pacific region and the role that our Society has in promoting this discipline. We have received a letter from the President of the ISDB, Claudio Stern, describing the activities of the ISDB and calling on us to provide feedback. Please do take this opportunity to respond either directly to Claudio or you can respond to a member of the ANZSCDB Executive.

Dear colleague,

As you may know, I was elected President of the International Society for Developmental Biology ISDB in Edinburgh last September and started on the job in January this year. I do not intend to make it a habit to send emails like this but feel that it is important to re-introduce the ISDB briefly and to give individual developmental biologists an opportunity to have a say in what we can do for you and the community of developmental biologists over the next 4 years and beyond.

As you probably know, the ISDB is not strictly a society but rather a federation of national and regional societies (see below for a list); you are receiving this email because you are a member of the ANZCDB. The main mission of the ISDB is to further interactions between developmental biologists on a wider, more international level than is possible through local societies. It has done this mainly through its meeting which occurs once every 4 years. The last meeting was in Edinburgh in 2009 and the next will be in Cancun, Mexico, in 2013. These meetings are very successful, typically attended by more than 1000 participants and the atmosphere is very lively. In addition to the main meeting the ISDB has been co-sponsoring other occasional meetings on an ad-hoc basis but in my opinion this has been less successful because few people knew about it and because there is not enough funding.

The ISDB is funded from two sources. One is an annual contribution from Elsevier arising from the royalties of the journal "Mechanisms of Development" (MOD), which is the official journal of the ISDB. The other source is an almost nominal capitation fee payable by the member societies. The ISDB is very unusual in that it does not spend any money on administration or on itself - all of the income goes to fund activities that benefit the developmental biology community around the world. Every penny therefore counts. Until recently I was one of the Editors of MOD, but I stepped down to avoid a conflict of interest when I became President of ISDB. The relationship with MOD and the income it brings to the ISDB is crucial for the development of the society - the more income, the more the society can do for the community (your support of MOD is therefore very important so please consider submitting some good papers).

It seems to us that ISDB could be doing more than just one meeting every 4 years. We would like to increase the frequency of meetings and start other initiatives to serve the international community of developmental biologists. Of course all of this will require improving our funding base considerably, but both need to be developed at the same time for this to work. One possibility is to co-sponsor/co-organise 3 regional meetings (covering Europe, pan-American and Asia-Pacific regions respectively), each every 4 years, out of cycle so that there is a major regional meeting somewhere every year, supporting a local organizing committee.

We would also like to continue to provide small grants to invite one or more major international speakers, and/or to sponsor attendance of particularly promising students or postdocs or even mid-career developmental biologists (who are neither new investigators nor the most famous ones - the forgotten majority, which no other scheme wants to fund), to developmental biology meetings. A requirement of this is that these lectures and grants will be advertised widely as "MOD-ISDB lecture", etc.

That's enough. I hope that this email will arouse your interest in the ISDB and that you will contribute to its development in the future, alongside your national and regional societies. You may well have some ideas of your own concerning how the ISDB may be improved to become more visible and to serve you better - if so, we want to hear from you. Please write to me either directly (mailto:c.stern@ucl.ac.uk) or via your national society. We will consider all suggestions and I will do my best to acknowledge every email.

Best wishes,
Claudio Stern

The current member societies of the ISDB are: SDB (USA), BSDB (UK) and the Societies for Developmental Biology of Japan, Germany (GfE), France (SFBD), Portugal, Latin-America and Australia/New Zealand (ANZCDB) and the Asia-Pacific network (APDBN). We are also currently talking to a few more national societies and encouraging them to join formally: the SDBs of Finland, Belgium, Italy, Israel, Spain, India, Mexico and Hong Kong. We are also currently in discussions with other countries that have a sizeable developmental biology community but not yet a society, including South Africa, Singapore, China, Taiwan and Iran, as well as possibly a European or East European grouping.

The current officers of the ISDB are:

Claudio Stern (UK) (President)
Marianne Bronner-Fraser (USA) (Secretary)
Stefan Schulte-Merker (Netherlands) (Treasurer)
Douglas Sipp (Japan) (Business Manager)
David Wilkinson (UK) is also being included in this executive board in his capacity as Chief Editor of "Mechanisms of Development".

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Publications from our Members

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MEMBERS IN THE NEWS

Prof. Roger Reddel has recently been elected as a Fellow of the Australian Academy of Science!
This is the highest accolade that could be bestowed on scientists in Australia. Election to the Academy recognizes Roger's outstanding achievements in biomedical research and seminal contribution to scientific knowledge in cancer biology.

Paul Thomas and Jeff Schwartz have compiled a Special Review Volume of Molecular & Cellular Endocrinology on " The Developmental Biology of Endocrine Organs" due to be published next month. This volume contains a series of informative reviews from leading researchers on a broad range of endocrine tissues including the pancreas, pituitary, gonads and placenta.

Professor Jenny Graves, a founding member of ANZSCDB, was made an Officer of the Order of Australia (AO), for 'service to scientific research in the field of genetics, particularly of Australian marsupials and monotremes, and their relevance to international understanding of human evolution'.

Professor Richard Harvey, Deputy Director of the Victor Chang Cardiac Research Unit and 2009 recipient of the ANZSCDB President's Medal has been awarded the 2010 Lemberg Medal by the Australian Society for Biochemistry and Molecular Biology.

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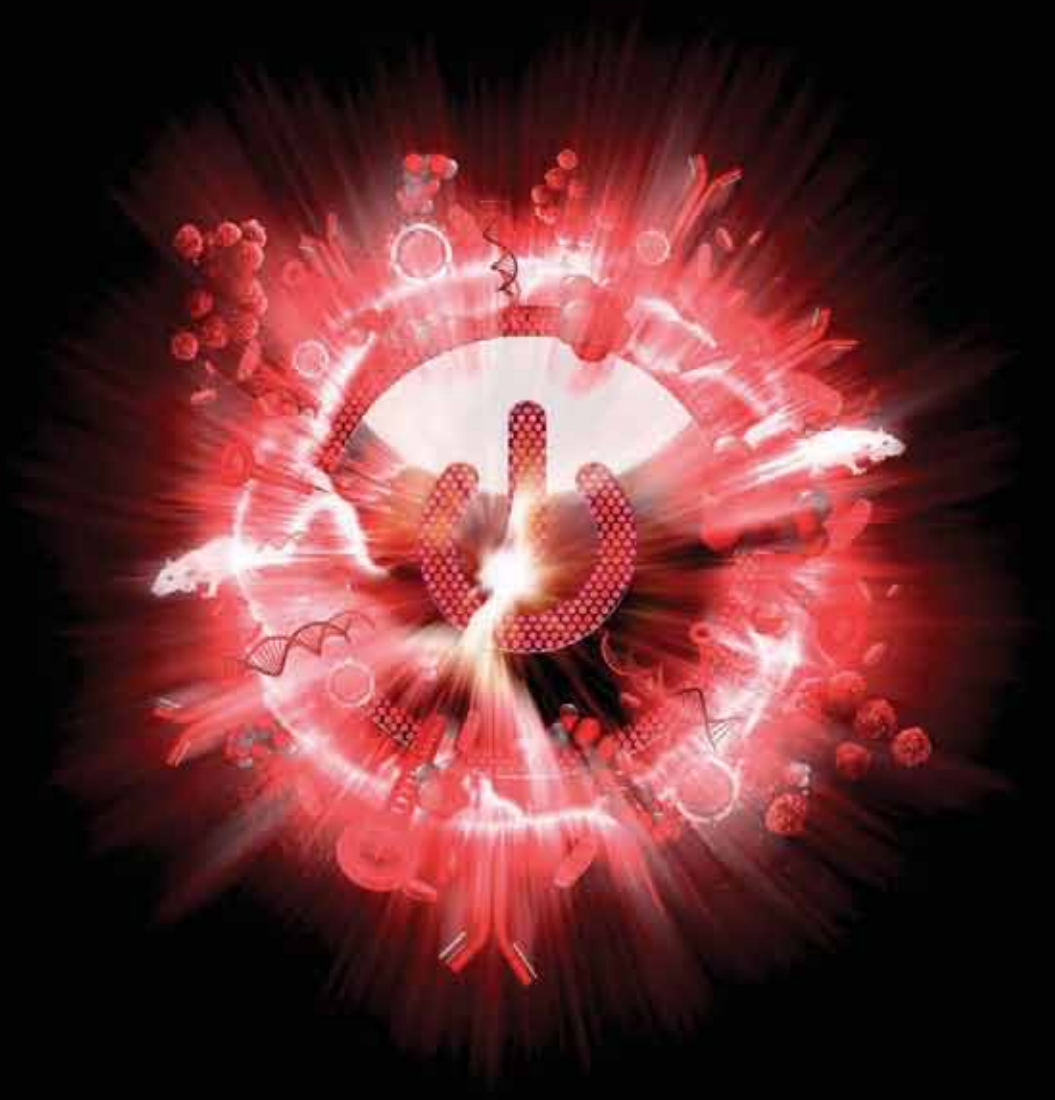

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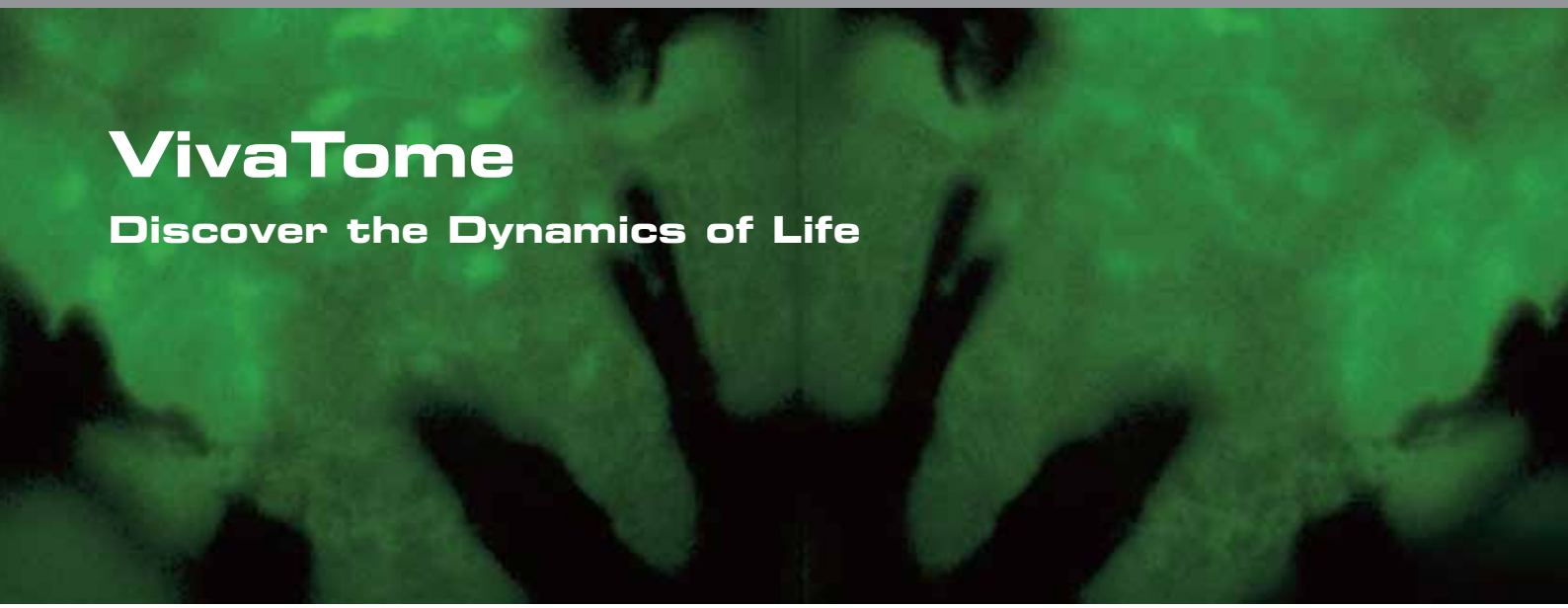

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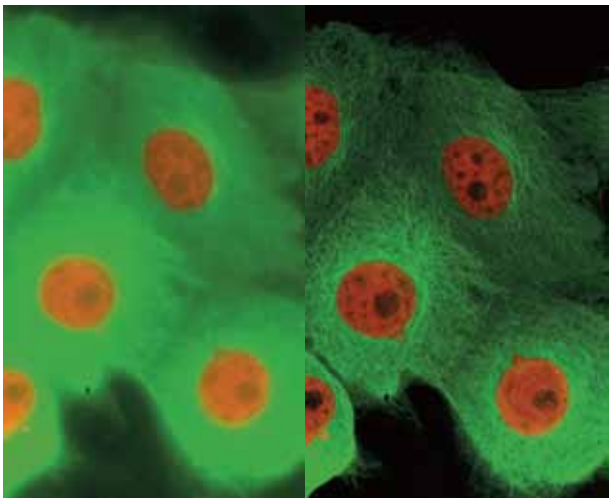

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