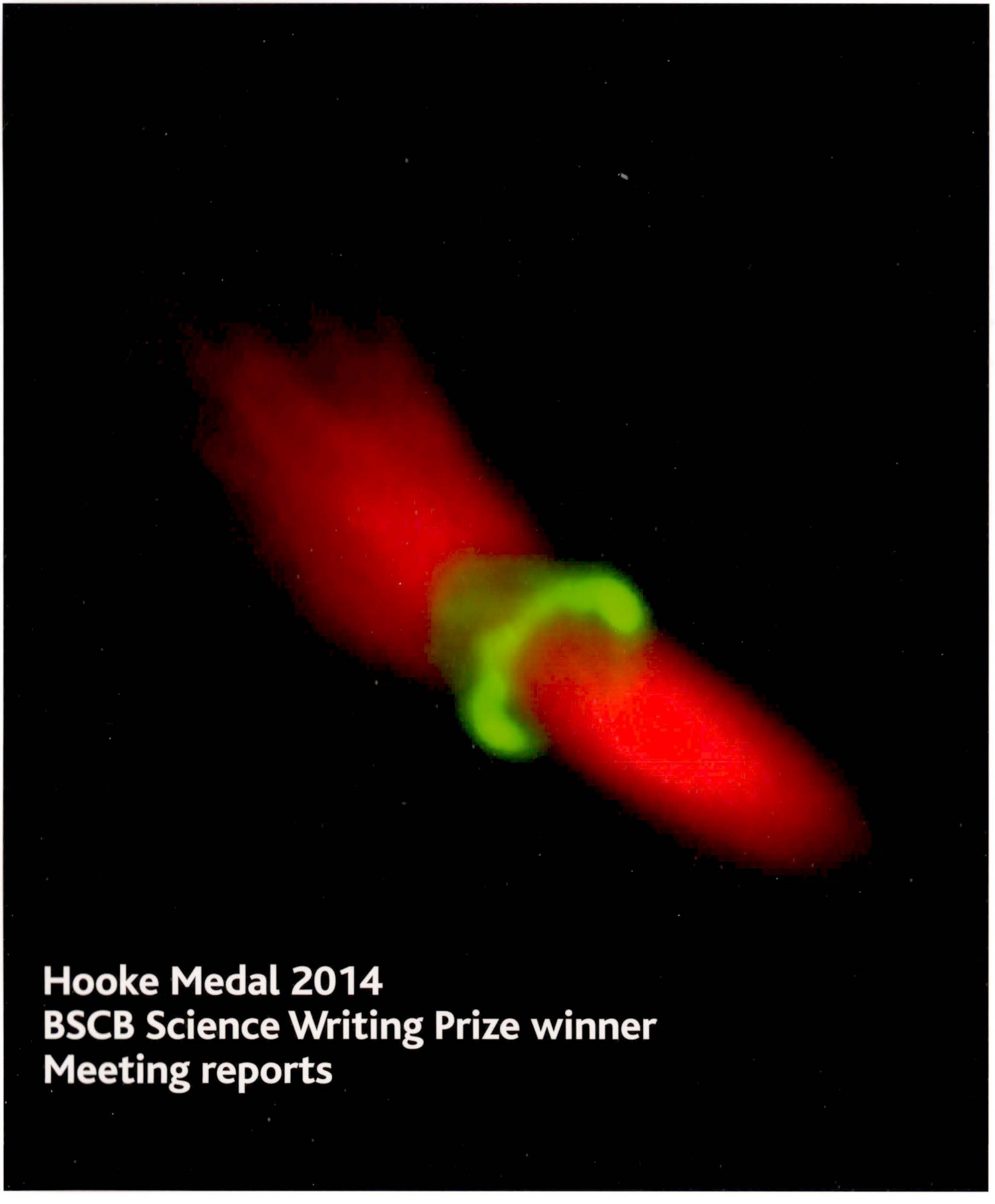
WINTER 2013

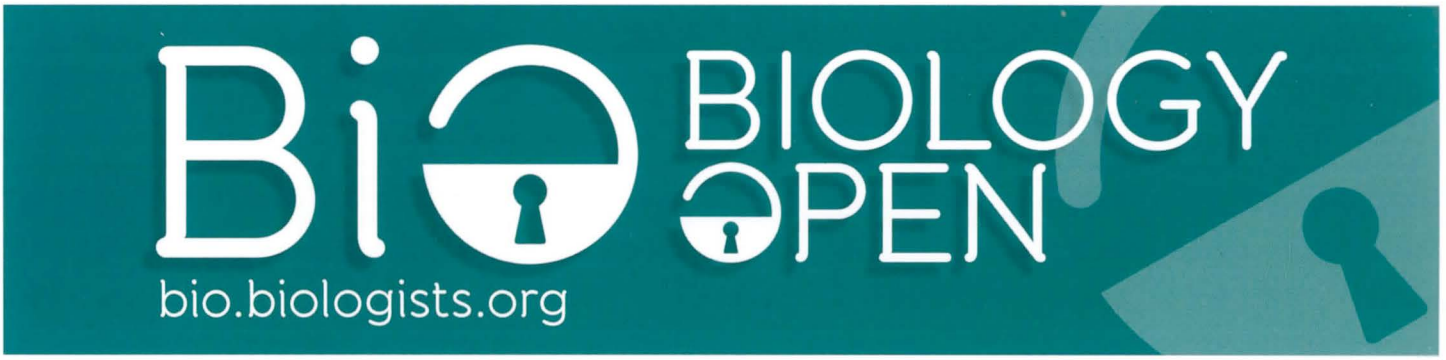
BSCB Newsletter

BRITISH SOCIETY FOR CELL BIOLOGY



Hooke Medal 2014
BSCB Science Writing Prize winner
Meeting reports

The Company of Biologists announces its new journal...



An Open Access, online-only journal that facilitates rapid review for accessible research

• About *BiO*

From the publisher of *Development*, *Disease Models & Mechanisms*, *Journal of Cell Science* and *The Journal of Experimental Biology*, *BiO* is an online-only Open Access journal that publishes original research across all aspects of biological science. *BiO* aims to provide rapid peer-reviewed publication for good-quality scientifically sound observations in these allied fields.

• Editor-in-Chief

Jordan Raff - Milstein Professor of Molecular Cancer Biology, University of Oxford, UK

• Founding Editors

John Gurdon , Alan 'Rick' Horwitz, Tim Hunt, Martin Raff and Cheryll Tickle

• Submit your paper

Submit Direct: Authors are encouraged to submit work of appropriate scope and focus directly to *BiO*, in which case peer review will be undertaken and managed by an international board of academic editors within each discipline.

Transfer option: Authors who have made their original submission to *Development*, *Disease Models & Mechanisms*, *Journal of Cell Science* or *The Journal of Experimental Biology* can benefit from our simple manuscript-transfer option should their paper not be accepted. Under this service, referees' reports from the original peer review can be passed to *BiO* for a more rapid publication service.

For more information on how to submit, visit bio.biologists.org

WINTER 2013

BSCB Newsletter

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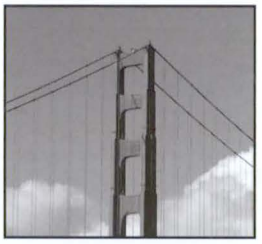


Editorial

Welcome to the Winter 2013 issue of the BSCB newsletter. You may have noticed the absence of a spring newsletter this year. After much discussion of whether or not the newsletter should go fully electronic, we have decided to keep one hard copy of the newsletter a year that should arrive by post in time for a relaxing Christmas read, with a shorter update eNewsletter sent by email to members in spring.

I hope you enjoy reading this edition. Inside there are the usual BSCB News and Business items – the President's annual report, schools news, announcements of the BSCB Image Competition (deadline 1st February 2014) and the BSCB Writing Competition (deadline 14th February 2014). Please note that the cash prizes for these competitions have increased considerably more than the rate of inflation so well worth digging out your stunning cell biology images and tapping out 1000 words of thoughtful essay style text on the computer. Dr Jenny Rohn, founder and chair of Science is Vital and the editor of LabLit.com has very kindly agreed again to judge next year's writing competition.

The BSCB has announced that Anne Bertolotti is the Hooke medal winner for 2014. Congratulations to Anne who works at the MRC LMB, Cambridge. Also, take a look at the interesting interview with Anne on page 7 about her career and inspirations that was conducted by our new postdoc rep, Alexis Barr.

Alexis introduces herself in a piece on page 26 and we also have a new PhD student rep, Claire Mills and you can get to know more about her and her plans on page 27. The BSCB committee voted in four new members this year – Nancy Papalopolou, Ana Pombo, Silke Robatzek and James Wakefield – and their contact details are on page 30 along with the complete list of current BSCB committee members.

Finally, the committee hopes to see many of you at the BSCB/BSDB joint Spring meeting in March – details inside – and I hope you have a fabulous Christmas and a successful and enjoyable 2014.

The Editor: Kate Nobes
University of Bristol
catherine.nobes@bristol.ac.uk

The cover image is by Dr Zuni Irma Bassi and Dr Pier Paolo D'Avino from the Department of Pathology, University of Cambridge. The image shows a ring of Citron Kinase surrounding the microtubules of an isolated HeLa midbody and was awarded 2nd prize in the BSCB Image Competition of 2012.

Newsletter editor: Kate Nobes **Production:** Giles Newton **Website:** www.bscb.org **Printer:** Hobbs

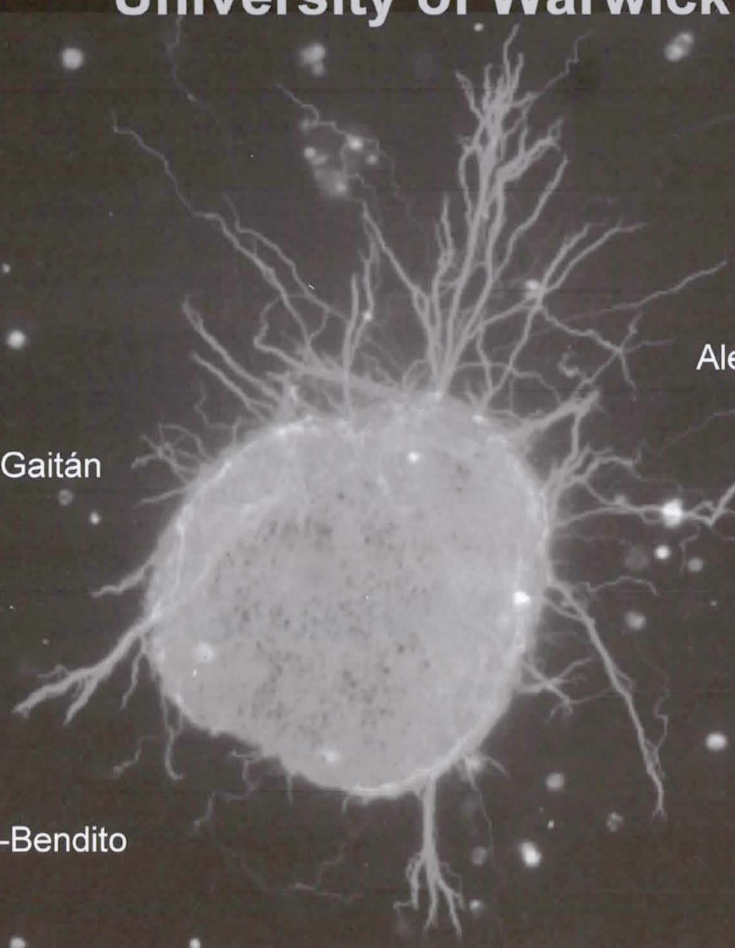
BSCB BSDB

British Society for Cell Biology
British Society for Developmental Biology

Joint Spring Meeting

16 - 19 March 2014
University of Warwick

Detlev Arendt
Clare Baker
Cedric Blanpain
James Briscoe
Peter Campbell
Peter Cullen
Jon Clarke
Simon Cook
Caroline Dean
John Dick
Evan Eichler
Marcos González-Gaitán
Magdalena Götz
Sarah Guthrie
Kat Hadjantonakis
Edith Heard
Nickolas Kent
Peter Kind
Pierre Léopold
Ottoline Leyser
Guillermina López-Bendito
Ilaria Malanchi
Denise Montell



Keith Mostov
W. James Nelson
Ewa Paluch
KJ Patel
Matthias Peter
Emma Rawlins
Margaret Robinson
Iñaki Ruiz-Trillo
Alejandro Sánchez Alvarado
Yoshiki Sasai
Anne Spang
Didier Stainier
Molly Stevens
Daniel St Johnston
Shahragim Tajbakhsh
Giuseppe Testa
Jerrold Turner
Scott Waddell
Will Wood
Sarah Woolner
Jerry Workman
Gregory Wray

Plenary lectures by:

Kai Simons and Janet Rossant

Topics include:
Cancer, Cell Signalling, Building bodies, Epigenetics and Chromatin Structure, Epithelial Development and Disease, Live Imaging of Cell Motility and Morphogenesis, Membrane Trafficking, Neurodevelopment and Disease, Organ Stem cells

Scientific Organisers: Andrew Chalmers, Lynda Erskine, Adrian Harwood, Jordan Raff

www.bscb-bsdb-meetings.co.uk

Image by Dr Freyja Bruce

THE COMPANY OF Biologists

News

Hooke Medal Winner 2014

The British Society for Cell Biology is delighted to announce that the 2014 Hooke medal winner is Anne Bertolotti from the MRC Laboratory of Molecular Biology, Cambridge.

The Hooke medal is awarded each year to an outstanding UK cell biologist who has been working as an independent research scientist for less than 10 years. Previous winners have included Anne Ridley, Matthew Freeman, Alex Gould, Holger Gerhardt and last year's winner Eric Miska.

Anne has been a group leader at the MRC Laboratory of Molecular Biology since 2006 and an INSERM scientist since 2001. She was elected an EMBO Young Investigator in 2005 and an EMBO Member in 2013. Anne obtained her PhD from Strasbourg University (France), working with Pierre Chambon and Lazslo Tora and pursued her postdoctoral training in David Ron's lab at The Skirball Institute of Biomolecular Medicine, NYU Medical Center, New York.

Anne's lab is interested in understanding the mechanisms underlying the deposition of proteins of abnormal conformation in cells, which is a hallmark of many pathological conditions. In addition, she is looking at strategies that can help cells in boosting their natural defenses against misfolded proteins, aiming to correct numerous conditions, such as Alzheimer's and Parkinson's, characterized by the accumulation of misfolded proteins.

Anne will be presented with her medal and will give the Hooke medal lecture at the BSCB/BSDB Spring meeting at the University of Warwick, 16–19 March 2014.

BSCB Newsletter Cover Image Competition

We are pleased to announce the fourth year of the BSCB image competition. Entries should illustrate cell biology in any form and the winning images will be used as cover art for the newsletter. The closing date for entries for the 2014 competition is 1 February 2014. Please see the full rules and entry requirements below. You must be a current member of BSCB to enter; however it is very easy to join – visit the website to find out how!

Eligibility

1. This competition is open to members of the British Society for Cell Biology. Entrants must be a member at the time of submission of entries.

2. Only one entry per person is allowed.

3. The subject matter of competition entries is flexible but must reflect current research in Cell Biology.

Submission

1. Entrants must supply their name, address, email address, and BSCB membership number on entry.

2. Entries must be sent by email (10 x 11.96 cm 300 dpi) to Paul Andrews (pdandrews1@mac.com).

Shortlisted entries may be requested as 600 dpi JPG saved at maximum resolution sized at 196 mm wide x 230.5mm high and in RGB colour mode. (The coordinator can liaise with the shortlisted entrants at this point.)

3. At the time of submission, entrants must state clearly that they are the creator of the submitted image.

4. Your entry should adopt the file name initial_surname.jpeg e.g. a_einstein.jpeg.

5. Entrants should supply a concise stand-alone caption limited to 50 words as a MS Word document on the same CD, labelled initial_surname_caption.doc.

6. The deadline for entries is 1 February 2014.

7. Entries that do not conform to the entry requirements will be disqualified.

Prizes

Prizes will be awarded as follows: 1st Prize £200, 2nd Prize £100, 3rd Prize £50.

General information

1. Entries will be anonymized prior to judging.

2. The organisers reserve the right to cancel this competition at any stage, if deemed necessary in their opinion, and if circumstances arise outside their control.

3. The organisers' decisions are final in every situation and no correspondence will be entered into.

4. Entries will be published on BSCB webpages and will illustrate BSCB newsletters and other promotional material. Copyright will remain with the creator. If you do not agree that images may be used as stated you must stipulate this on the entry form.

5. Entrants will be deemed to have understood the competition rules and accepted them and agree to be bound to them when entering the competition.

BSCB Science Writing Prize 2014

Have you got a great science story in you? Do you fancy your chances at winning £500? This winter the BSCB will again be running its fabulous Science Writing Competition for BSCB members.

The BSCB Science Writing Prize is open to all BSCB student and postdoctoral members but please note that BSCB membership is a requirement for entry – don't let that put you off because it is easy to join.

We particularly will be looking for articles that cover topics of key relevance in biomedical science, but the submissions need not be limited to your own research area - you might like to try to communicate a completely different yet exciting discovery. Just make sure that the submission is concise and entertaining and pitched to a non-specialist audience. Other topics are admissible (but should be broadly relevant to cell biology) – these might include ethical discussions (e.g. the impact of regenerative medicine) or a feature on an important disease condition or a wider policy debate such as how biomedical research is funded.

The winner will receive a prize of £500 and the winning entry will be published in the BSCB newsletter and online. We are very pleased to announce that shortlisted entries will be judged by Jenny Rohn, published novelist, cell biologist at UCL, founder and chair of Science is Vital and the editor of LabLit.com. Jenny will be looking for pieces that capture interest in an original and striking way and that bring science to life for the lay reader.

Note: the deadline for entries is the 14 Feb 2014 and the word limit is 1000.

Rules for entrants

1. The BSCB Science Writing Prize is open to all BSCB student and postdoctoral members.

2. The piece must be all your own work.

3. We will particularly be looking for articles that cover topics of key relevance in biomedical science but not necessarily limited to a research topic.

4. Articles should be no more than 1000 words.

5. The winner will receive a prize of £500.

6. By entering you agree to that if awarded the prize the winning entry will be published in the BSCB newsletter and online.

7. The BSCB is not solely responsible for publicity for the winning entry.

8. The deadline for entries is the 14 February 2014.

9. Entries should be sent to Paul Andrews (pdandrews1@mac.com) as electronic files (preferably Word format).

The winner of the 2013 BSCB Science Writing Prize was Sarah Byrne from Imperial College London, for her essay "Our own worst enemies? Why resistance is not futile, and what that means for cancer research." You can read the all the winning entries on the BSCB web-site (www.bscb.org).

BSCB Summer Studentships

The BSCB Summer Vacation Studentships offer financial support for high calibre undergraduate students, who wish to gain research experience in cell biology during their summer vacation. Our aim is to encourage students to consider a post-graduate research career in cell biology after their undergraduate studies. The deadline for applications is 28th March 2014 and full details will be available in the new year so please check www.bscb.org for information on applications.

Details

1. Studentships will only be awarded for students who have yet to complete their first degree, usually prior to their final year of studies.

2. Awards comprise a student stipend of £180 per week for up to 8 weeks plus consumable costs of up to £500 to the host laboratory. The award will be made via a supervisor and administered by the host institution.

3. Applications must be made by the prospective supervisor on behalf of a named student, and must include the student's CV together with a reference from their personal tutor (or equivalent). Undergraduate students are encouraged to develop a project with the help of the supervisor.

4. Supervisors must be a BSCB member before, or on the date of, the application. Only one application may be submitted per supervisor. There are no restrictions concerning the nationality of the student, nor do they have to be a student at a UK university.

5. The deadline for applications is 28th March 2014. Full details of the application procedure will be announced on the website at www.bscb.org. The application should include the applicant's name, contact details, host institution and department, the student's CV, a supporting statement from the student's academic tutor reference, and the project title, with a brief description of the proposed research project in the context of the research of the group. The research project must be on a topic in the broad area of cell biology and must not form part of the student's normal degree work. Projects will be assessed for objective, achievability and opportunity to the student. Students are encouraged to undertake a project at an institution other than the one at which they are studying.

6. Applications will be reviewed by a panel of members from the BSCB committee. Feedback on unsuccessful applications will not be provided.

7. The successful applicants will be required to, within two months of completion of the project, submit a short article describing the outcome of the project.

Dynamic Cell 2014

4–7 September 2014

Robinson College, Cambridge, UK

Dynamic cell growth, division and movement are hallmarks of life and are essential for the formation of an organism, yet our understanding of the molecular basis of these processes is far from complete.

The Dynamic Cell 2014, jointly organized by the British Society of Cell Biology and the Biochemical Society, will focus on the molecular biology underpinning the dynamic nature of these key cellular processes. Investigators using different model organisms and both *in vivo* and *in vitro* approaches will showcase the most exciting and topical findings from the UK and around the world in dynamic cell biology. Areas of particular focus will be the role of membrane traffic, chromosome and centrosome behaviour, the functioning of the cytoskeleton and structure and function of motor proteins in regulating and co-ordinating dynamic cellular behaviour.

In addition, Prof Jim Spudich, Stanford University, will deliver the British Society of Cell Biology lecture and we will award 3 Biochemical Society medals at this meeting – the 2014 GlaxoSmithKline Award to Prof Juan Martin-Serrano, KCL; the 2014 Early Career Award to Dr Melina Schuh, MRC-LMB; and the 2014 Novartis Award to Prof Jeff Errington, Newcastle University.

Topics

1. Cell migration and the cytoskeleton
2. Cargo sorting in the endocytic and secretory pathways
3. Molecular control of chromosome segregation and mitosis
4. Membrane dynamics during cytokinesis
5. *In vitro* analysis of molecular motors

Abstract deadline: 3 July 2014.
Earlybird registration deadline: 4 August 2014.
For more details go to: bscb.org

BSCB Blogs and Bytes

In September (2013) and in readiness for the new school year, the BSCB launched Blogs and Bytes as part of an e-learning contribution to its Public Engagement commitment. [See www.bscb.org]

Blogs and Bytes provides a bridge between biology in school and biology (especially cell biology) at college, university and the world of work. It is intended that it will carry 'people stories' about how they were 'turned on' to biology, their education at school, college or university and career track experiences to provide inspiration, and some role model or at least career pathway examples.

Blogs and Bytes will also include some information about more recently labelled bioscience areas such as 'synthetic biology' and snippets about research in order to paint an inspirational horizon for prospective bioscientists.

Our first exemplar story was kindly provided by Professor Karen Vousden (Beatson Institute, Glasgow) who, when she said at age 14 she wanted to be a research scientist, was told by a careers adviser at school "that's much too difficult, how about working in a bank?". Hopefully the next story will be about Professor Russell Foster (Nuffield Department of Clinical Neurosciences, Oxford) who cut his eyelashes off at age 7 so that he could see more clearly through his junior microscope!

Later will be the story of Nobel prize-winner Mario Capecchi. As a five year old Mario was living on the streets at the time that Ann Frank was writing her now famous diary.

We want more stories from bioscientists who have more recently gone through schooling and tertiary education. Stories should relate how the writer was 'turned on' to biology and/or chemistry at a young age and include a 'school experience' (primary, secondary or both) if that is applicable to the story.

Stories could be published using a pen name if anonymity is preferred, but all stories must be written from a bona fide and contactable address [Offers please to David Archer, BSCB Schools Liaison Officer, who compiles 'Blogs and Bytes'. Email: d.archer@talktalk.net]

Schools news

BSCB submission regarding the proposed new 'A level' syllabus in Biology.

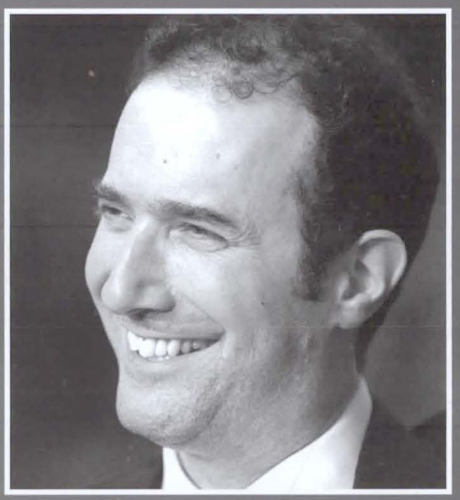
In a previous submission, the BSCB was instrumental in having the cell cycle (as opposed to just mitosis) and cell signalling (as opposed to just hormones) mentioned in 'A-level' work.

In its latest submission (Summer 2013) the BSCB has suggested that epigenetics is mentioned when genetics is studied. In the submissions the BSCB does not suggest the addition of detailed knowledge to an already heavily fact-loaded syllabus. Rather it advocates that topics already in the curriculum are seen in a 'bigger picture' to reflect contemporary but firmly established findings advances.

To provide information for teachers and students about epigenetics, Ian Cowell (University of Newcastle) has written an essay: 'Epigenetics – It's not just genes that make us'. This essay can be seen in the softCELL e-learning section of the BSCB website.

David Archer. 1 October 2013

President's report



It's been another busy year for the BSCB, and I have much to report. Perhaps the thing that I am most proud of is that the BSCB was one of the first organisations to sign up to the San Francisco Declaration on Research Assessment (DORA) (http://am.ascb.org/dora/). Sadly, I suspect that many of you will not have heard of it. It was an initiative launched by the American Society of Cell Biology and several leading journals and academics to formally renounce the use of the Journal Impact Factor (JIF) as the dominant tool in the assessment of an individual's scientific contributions. I've written before about why I think our current obsession with JIF is such a pernicious problem and how it is distorting the entire scientific process (http://tinyurl.com/8r2x5fx). I urge you to read the declaration and to think about these issues. The potential solutions that DORA proposes may seem naïve, certainly in the short term, but my hope is that DORA will prove to be an important first step in addressing this important issue that effects all of us. I hope you will agree that signing up to it was the right thing for the BSCB to do.

You may remember that last year we implemented some important changes to how we run our flagship Spring meetings, and I'm delighted to report that the 2013 meeting finally reversed the long-term gradual decline in attendance, with more than 350 people attending—159 of which were students. I was also delighted at the number of senior scientists attending. As usual, the science was excellent, and we made a real effort this year to make the meeting as conducive as possible for stimulating interactions. Scientists are incredibly busy and under pressure these days, but these meetings offer an excellent opportunity to keep up with the most exciting new developments and to network with others. It was gratifying to experience the real buzz at the meeting. I would like to thank our organisers JP Vincent (who a few months later was elected to the Royal Society – coincidence? I think not) and Steve Royle, as well as their BSDB counterparts Fiona Wardle and Keith Brennan. As an organiser for the 2014 meeting, I hope this upward trend will continue and that you will take advantage of the early bird registration fees and register as soon as possible.

Those of you paying attention will have noticed that the 2014 organising committee demonstrated exceptional prescience in inviting Jim Rothman, a winner of this year's Noble Prize in Physiology or Medicine, as one of our two Plenary speakers; the other Plenary speaker is Janet Rossant. Unfortunately, a few days before this year's prize was announced, Jim had to pull out of the meeting, although I don't believe that at the time he knew he would be awarded the prize a few days later. Fortunately, we are very lucky that Kai Simmons has agreed to step in to the breach, which will surely increase his chances for next year's prize. I want also to highlight some of the non-research sessions that we will have at next year's meeting. Besides the "Student Symposium" and the "Alternative Careers" session, we will have for the first time a "Reproducibility in Science" workshop, which will address why so much that is published in the biological sciences is hard to reproduce, an issue that may relate to the one raised above in my discussion of DORA; it is certain to be a topical and lively session.

The autumn meeting was also outstanding – a big thank you to Anne Straub and Justin Molloy for organising it. As has been the trend over the last few years, we struggled a little to attract a large number of attendees. It has always been a mystery to me why this is so, since the meetings always have excellent speakers and those who attend rate them highly. The BSCB committee has decided to look hard at these meetings over the coming year, to consider why they are not more popular and what we can do about it? Perhaps they should be replaced by several one-day meetings, which might better serve our community. We would be very interested to hear your thoughts on this.

The BSCB committee continues to work hard to ensure the success of the Society. We were very sorry to lose the dedicated services of Dan Cutler, who served as our Membership Secretary for many years, and Kimberly Bryon-Dodd, our Student Representative. Dan played a major part in reorganising our membership database, and Kimberly was an endless source of enthusiasm, organising and participating in events at the Spring meeting and beyond. They will both be sorely missed, and I thank them on behalf of the Society for all their effort. Andrew McAinsh also retired as our Meetings Secretary, although we are fortunate that he will continue to serve on the Committee; and please spare a thought for Steve Royle, who, due to his success in organising the 2013 meeting, has now been "promoted" to Meetings Secretary. It is also a pleasure to welcome on board Nancy Papalopolou, Ana Pombo, Silke Robatzek and James Wakefiled as new Committee members. James deserves a mention, as he has agreed to take over from Dan as our new Meetings Secretary. He has grand plans to revive our BSCB Ambassador scheme, in which we aim to have a BSCB Ambassador in every relevant "cell biology" department in the country; if you are interested in finding out more about how to become involved in this scheme, please contact James.

I want to finish by thanking the Company of Biologists (the publishers of The Journal of Cell Science, Development, The Journal of Experimental Biology, Disease Models and Mechanisms and Biology Open), for their continuing support of the Society. We could not run the Society without them, and we are very grateful for their support of the cell biology community in the UK.

I wish everyone a great 2014, and I look forward to meeting many of you in Warwick next year.

Jordan Raff

An interview with Anne Bertolotti, BSCB Hooke medal winner 2014

Anne was interviewed by Dr Alexis Barr, BSCB Postdoc Rep and Postdoctoral Training Fellow, ICR.

When did you first decide to pursue a career in science?

It's difficult to say exactly but as a child, although I didn't know what career I wanted to pursue, I knew that I wanted to wake up in the morning and be thrilled about going to work. I had a small microscope as a child and was fascinated by snowflakes: evanescent and so beautiful! I would spend winter afternoons looking down the microscope! My aim in life is not to be bored and science is wonderful for this. Each day you go into the lab not knowing what you will discover and you get to do things that people have never done before.

How and when did you first become interested in protein misfolding?

I went to New York to do a Postdoc with David Ron. This was a very exciting time in my career because we knew that mammalian cells had an Unfolded Protein Response (UPR) but we didn't know anything about it. So it was a really fun time to discover how cells deal with misfolded proteins in the endoplasmic reticulum. After this, I wanted to move on to look at how misfolded proteins were associated with disease. Although I had worked on the UPR, I had never seen a misfolded protein in a cell; therefore I wanted to look at protein aggregation in cells and how this is involved in disease.

What are the big questions your lab currently focuses on?

The big question we are working on is how can we rescue cells from a failure in protein quality control. As we age, protein quality control starts to decline, leading to an accumulation of misfolded proteins and disease. Therefore, what we are trying to do is to tweak protein quality control in cells to try and boost the cell's ability to cope during ageing. The way we are doing this is to look for approaches that promote cell survival in the presence of disrupted protein quality control. Cells with disrupted protein quality control die and we are trying to find mechanisms that will keep these cells alive. This is very exciting for two reasons: 1. we are finding novel basic cellular pathways that have not been described before, and 2. we are discovering pathways that in the future could help in the treatment of human disease.

Another big question we are addressing is how do aggregated proteins get into cells? People were initially sceptical about our results in this area but now several other labs are using the assays we have developed and

have made similar observations so it is really rewarding. I am confident that with technical advances we will really crack this question one day.

What has been your most exciting discovery to date?

The work we are doing at the moment keeps me awake at night. We have found ways to rescue cells from the lethal accumulation of misfolded proteins. In the future, once we understand the mechanisms involved, this work will be immensely useful for designing new therapeutic strategies to treat disease. So not only is it exciting work, it is also very rewarding.

You've worked in France, the US and the UK – what are the main differences in the way labs are run/science is carried out between these three countries?

From the very start of my career, during my PhD in Pierre Chambon's lab, I realised that science has to be international and that your work has to be internationally competitive to be significant. Because science is international, Strasbourg, New York and Cambridge are all very similar. It is the institution that makes the difference and not the country. The LMB in Cambridge operates in a manner that is similar to how Pierre ran his Institute in Strasbourg. The lab runs on a very communal basis – sharing resources and equipment. This means that we can rapidly evolve from one technique to another to try and find the best way to answer our questions. We use a full spectrum of techniques – from biophysics through to animal models. We will use whatever it takes to answer important questions.

Did you ever think you wouldn't make it to be a Team Leader and, if so, why?

I always wanted to lead my own research – that was really my drive throughout my career and being a Team Leader is the way to do that. I still have doubts even now but in science we have to doubt. We have to constantly challenge our judgements and ourselves. I was even talking to a Nobel Prize winner recently who still had enormous doubts over his competence and his abilities and was still insecure about submitting papers! It's reassuring that everyone has doubts.

What were the biggest obstacles you've had to overcome during your progression to Team Leader?

There were definitely bumps on the road. Some bumps bigger than others. But science is always the drive. Pierre Chambon advised me to "Focus on the science". This has really helped me to forget about the obstacles and difficulties.

How did you find the transition from being a Postdoc to being a Team Leader?

Very slow – but for the right reasons. First, I had two maternity leave periods, which obviously slowed things down. I also wanted to define a new research area and develop my niche. I had to spend a lot of time thinking about the direction I wanted my research to take and find important problems worth tackling. So although the transition was slow, it was definitely worth it.

Who has been your most inspiring mentor and how have they helped you?

I've always been extremely fortunate to work with very bright people. I have already mentioned Pierre Chambon who has been influential and inspiring. My Postdoc supervisor, David Ron, was also an extremely clever scientist who shaped the way I think and plan my research today. My time in his lab was very inspiring.

What do you enjoy most about being a Team Leader?

Everything! We're having a fantastic time in the lab right now. I have fantastic group who are doing fantastic work and it's very exciting. The lab are generating lots of data and we're having lots of interesting discussions. I also enjoy getting CVs from talented individuals – it makes me feel very honoured that they have applied to my lab. I also find guiding research a lot of fun. I still like to do experiments – when I have the chance. I think it's important not to get too detached from the bench.

.....and the least?

Paperwork.

What advice do you have for PhD students when looking for a Postdoc position?

Follow your gut feeling – don't try to be too strategic. Go where your passion takes you. You have to be driven by passion in science to be successful. On a more practical note, go to a well-funded lab so that you can do the best research. Make sure you will have a mentor who is available and not always travelling, and that the lab are as dynamic as you because this will also drive your science forward. It's also a good idea to have two projects – one more risky and one "safer" project but you have to be careful not to get too distracted.

What advice do you have for Postdocs who are looking to become independent?

Get yourself known. Don't be shy about going out and talking to people in your field about your work and what you are doing. You want people to know you and your work. Lots of people are very happy to give advice so if there is no one in your institute who can help then look outside for advice. It's also good to get advice from people at different stages of their careers.

How do you spend your time outside the lab?

I have two children and so I balance my work with family time. Sometimes the balance isn't always right and I have to reset it. I also try to spare some quality time for friends, rare but precious. I also love cooking. I think it's important to balance an active, demanding job with physical activity so I also like to kayak and go to the gym.

Any other advice for young scientists?

I always feel rather flattered when I'm invited to graduate student symposia. It means that our work has gone from the bench to Pubmed and back out to students. It's very exciting. What I've found is that many PhD students worry about the future, about the uncertainty in science and how their career will progress. I say be fearless! There is no reason to be afraid. You shouldn't be afraid to move. Go where your science takes you and follow your gut feeling. You have to be willing to invest yourself in the things you believe to be important and then I think you can't fail. Being a Team Leader is such a nice career – we can do what we want! It's a very exciting job.

BSCB Science Writing Prize 2013

We are very pleased to be able to announce that this year's Science Writing Prize winner is Sarah Byrne from Imperial College, London whose essay entitled "Our own worst enemies? Why resistance is not futile, and what that means for cancer research" was selected as the outstanding winner.

Sarah is a second year Ph.D student in the Institute of Chemical Biology at Imperial College London, working on mathematic models of protein dynamics in disease-related kinases that regulate the cell cycle. Outside of research, her main interest is science communication and engagement, and is "especially interested in use of narrative and storytelling in science writing".

Commenting on Sarah's essay our judge this year, Dr. Jenny Rohn, said "The piece is sophisticated, original, beautifully written and ties together multiple phenomena in science into one unifying philosophical theme". Not only that, Jenny deemed it "Pretty Nifty". Congratulations Sarah!

Many thanks to all the entrants for spending the time to write and submit, in what was a very competitive year.

Paul Andrews, BSCB Public Engagement Coordinator

Our own worst enemies? Why resistance is not futile, and what that means for cancer research

Sarah Byrne

When the new millennium dawned, it felt like the future was finally here.

"Is this the breakthrough we've been waiting for?" the May 2001 cover of TIME magazine asked. Gleevec pills, golden and bullet-shaped, shone bright against a dark background. The imagery was clear: was this the magic bullet that would cure cancer once and for all?

"I think there is no question that the war on cancer is winnable," said the director of the Memorial Sloan-Kettering Cancer Center, quoted in the same article .

Gleevec was a new drug to treat chronic myeloid leukaemia (CML), a fatal blood cancer affecting hundreds of people per year in the UK and several thousand in the US. It was also the first of a new generation of 'targeted therapies', smart drugs that would precisely target cancer cells. These were to be more effective than traditional chemotherapy, especially for hard-to-treat cancers such as CML, and with fewer side-effects as well.

But problems started to appear. Some patients who were initially responding well started to relapse: their cancer was developing resistance to the new drug. In the following years, several alternatives to Gleevec were developed to treat the drug-resistant cases. And again they initially seemed to work, but eventually the same problem arose. A decade later, that problem remains unsolved.

Resistance has in fact plagued most attempts to develop targeted therapies for cancer. It seems to be an inherent problem of the approach: its greatest strength — the precision targeting of a single gene or protein — is also its weakness. Only a small change or mutation in the cancer cell is necessary to stop it working.

But hasn't all this happened before? The same rhetoric

— 'magic bullet', 'miracle drug' — heralded the arrival of penicillin. And look at how that turned out.

Resistance is now a well-known problem in bacterial infections. These include the infamous MRSA 'superbug' which can now evade most commonly-used antibiotics; including, of course, penicillins. It's a similar story with viral infections, including HIV: resistance is an increasing concern. Resistance to anti-fungal pesticides is a major issue for agriculture.

It's not just the tiny things, either. When the disease mxyomatosis was introduced to control the rabbit population in Australia and Europe, it ended up producing a resistant population ('superbunnies', maybe?) and numbers began to increase again. It isn't even strictly limited to living things. Resistance has been observed in prions — the abnormal protein molecules involved in neurological diseases BSE and CJD — which few would define as 'alive', though perhaps that definition is becoming less certain.

We do know that resistance is universal; inescapable. Whenever you apply a selective pressure to a population — anything that kills or impairs a large proportion of that population — you favour the survival of those who can resist it. Before long, they become the population.

Cancer cells are no different. They want to survive, to live as long as possible: forever, if they can. They want to be individuals, do their own thing, spread and migrate and colonise, build infrastructure to support themselves; heedless of the damage they cause to the body as a whole. Blind to the fact that they might be killing the host that supports them.

Wait, does that sound familiar?

We often refer to cancer cells as 'abnormal', because of the changes in their characteristics and behaviour compared to 'normal' healthy body cells. But think of the ancestry of a cell. Once, in a world long before we or any complex animals existed, unicellular organisms — tiny beings each consisting of a single cell — were the norm.

Their descendants are the 'normal' cells that make up our bodies. But they're different now. Obedient and well-behaved; staying quietly in their assigned place in the body. Not taking more resources than are allotted to them. Following orders even to the point of sacrificing themselves willingly for the greater good: the needs of the many outweigh the needs of the few.

Not many of us would relish the chance to live in a society like that. It seems to go against every natural instinct. We want the freedom to travel where we will, to have as many or as few children as we choose, to consume what we want: survive and thrive and pass on our genes. Even if it harms the biosphere that supports us all. That's our nature, the same as most living things.

So when you think about it, which cells are really the abnormal ones?

And right here is the problem we have come up against. If we didn't have that drive to live and survive, we probably wouldn't be trying to cure cancer in the first place. But we can't have it both ways. If we are to have the imperative to survive, so must other forms of life — our common evolutionary history makes sure of that — and sometimes their needs come in conflict with our own. Usually, of course, we win. But when the conflict comes from within our own bodies, from our own oppressed cells turning freedom-fighter against us? The irony is particularly cruel, and particularly difficult to overcome.

None of this should detract from the advances that have been made. Gleevec was essentially a success story, as was penicillin in its time. For all the problems, Gleevec and its successors have dramatically improved the life expectancy of people living with CML, a report released in December 2012 showed. Every extra year a patient gets to spend with their loved ones, to live their lives as they choose, must count as a win.

But the recurring resistance problem highlights a paradox at the heart of medicine: the strong instinctive compulsion to survive that keeps us fighting disease and death, may ultimately be the same force that keeps us from succeeding. At times, we are quite literally our own worst enemies.

Sarah Byrne, Imperial College London

I'm a Scientist, Get me Out of Here!

The BSCB sponsored a cells themed zone in this year's June IMAS event and five BSCB members answered nearly 300 questions asked by six different schools. The major topics were cell death and communication although more unusual questions such as whether a badger has stripy skin were asked. The overall winner of the Cells Zone was Mario Ruiz, a PhD student at UCL who plans to spend his prize money on setting up a science club for schools with workshops where students can play and learn using scientific experiments. We caught up with some of our scientists after the event and asked them what the best bits were and whether it had inspired them to do more public engagement.

Q: What do you feel was the best bit about taking part in IMAS?

Andrew Devitt: "I wasn't sure what to expect from IMAS but there was no doubt that the online timed sessions with schools was inspiring. The live chats were fast and furious and it was clear that some students had really enjoyed this experience. The busier the session, the better! There's no doubt in my mind that this is one of most rewarding things I've ever done in my work. I also enjoyed letting students know that science is not all about science! It is about key skills that are suitable for almost any job they would like to do".

Alexis Barr: "It was really fun answering some of the questions. A lot of the questions were really entertaining. And I learned quite a lot of new facts myself looking up some of the answers".

Q: What was the best question that you were asked?

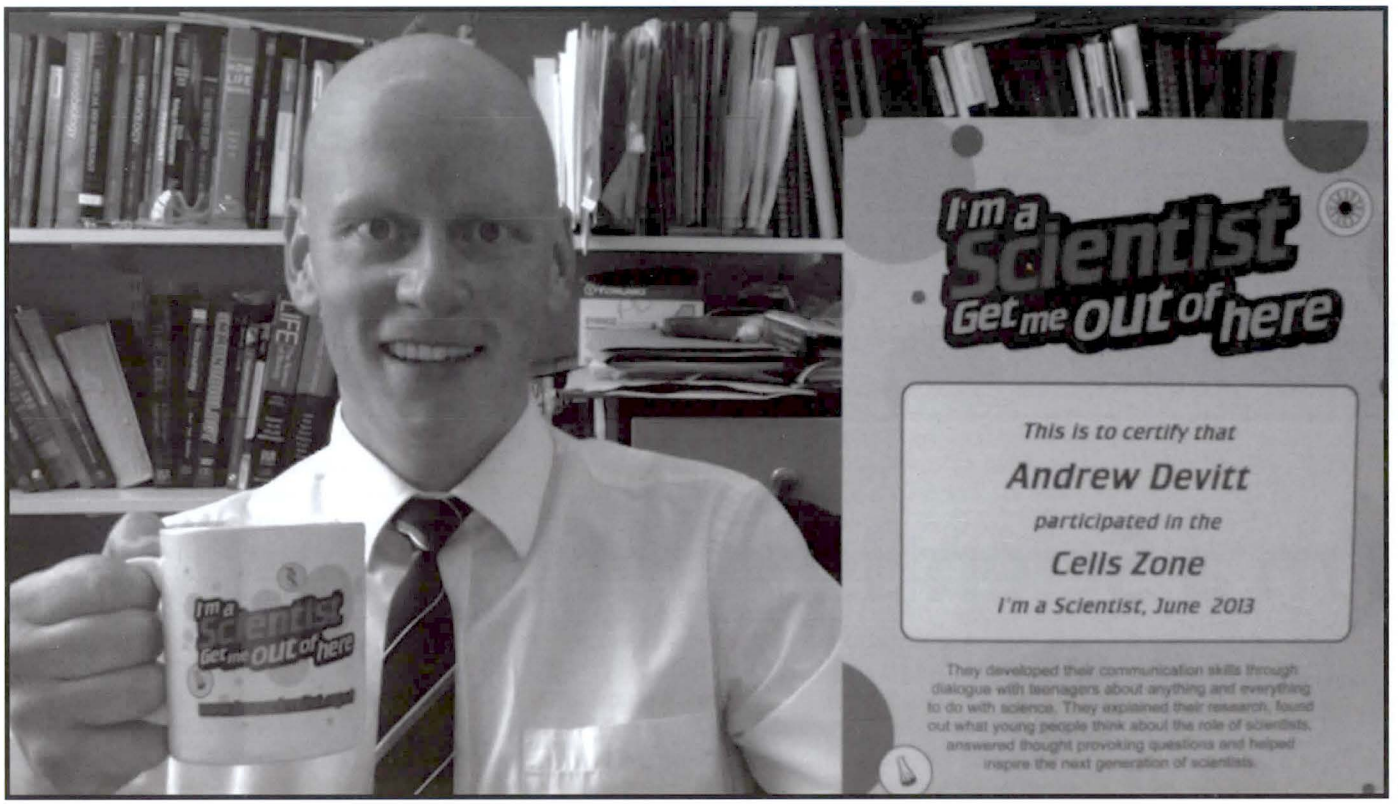
Jasmine Penny: This is a tough one because there were some fantastic questions sent in. However, I think the two that stood out for me where, "Can cells pass on memories?" and "Who discovered cells and how did he do it?"

Helen Tunbridge: "I was asked about the blood classification systems, the student had heard about people being A+ but didn't know what it meant. It was quite fun trying to explain that!"

Q: Has IMAS inspired you to do more outreach work in the future?

Jasmine Penny: "Definitely! Taking part in I'm a Scientist has increased my passion for enthusing others about Science."

Alexis Barr: "Definitely! "



Q: What skills would you say you developed by taking part in IMAS?

Andrew Devitt: "There are obvious answers to this question! Fast typing and keyboard shortcuts. But the more important skills were communication skills. Tailoring your answers to students from high schools required some work – to communicate effectively, you need to know your audience and this was a skill that developed throughout the fortnight of session."

Jasmine Penny: "I certainly have developed the ability to think on my feet! I would also say have learnt to view things from a different perspective."

Q: Was taking part in IMAS what you expected?

Jasmine Penny: "Taking part in I'm a Scientist was even better than I expected. I was nervous at first about the questions that would be asked but it was a great experience. It not only enables you to communicate with students but with other scientists in your field who may turn out to be collaborators one day!"

Andrew Devitt: "It was far more exciting and enjoyable than I expected. The 30 minute live chats were very intense but, if they were busy, they left you on a high and really excited about science. The only drawback was that the sessions passed so quickly. It was inspirational."

Q: Would you recommend other scientists to take part in IMAS in the future?

Helen Tunbridge: "Definitely, it's a really great challenge and some of the students' questions were really refreshing!"

Jasmine Penny: "Absolutely! I'm a Scientist is thought-provoking and challenging. I enjoyed every minute of it!"

Q: Any other comments?

Alexis Barr: "It is a lot of fun and really makes you think about your own science and its importance."

Andrew Devitt: "We need more engagement. More schools, teachers and students for more live chats and questions. More scientists to spread the excitement that comes with science."

Jasmine Penny: "I'm a Scientist is a fantastic initiative to enthuse school children about Science. Not only that, it has made me think about my work in a different way and I have also learnt some interesting facts through taking part."

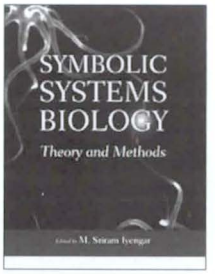
It is clear that all our BSCB scientists enjoyed taking part in IMAS. If you would like to find out more about the scheme you can do so at http://imascientist.org.uk/ and also download a copy of the BSCB sponsored Cell Zone report.

We would like to take this opportunity to thank our scientists and also congratulate Mario on his win; we look forward to hearing how his school club goes.

Book Reviews

Symbolic System Biology, Theory and Methods

R. IYENGAR



Symbolic Systems Biology: Theory & Methods
R. Iyengar

232 pages
Publisher: Jones and Bartlett, Inc
ISBN-13: 978-0763753702

In this book, the editor presents a diverse collection of papers highlighting different aspects of theoretical modelling used in system biology. The first five chapters are similarly structured and all discuss the fundamental theoretical preliminaries before exploring biological applications. Many biological examples are presented and executable models are developed using available software tools, thus allowing a hands-on approach that greatly enhances understanding. These examples are mostly rather simple, but provide a good indication of the capability of the formalisms. Despite the limited number of contributions, the formalisms selected provide a good overview of the different currents in theoretical systems biology.

The format of the book makes impossible to cover of a large number of theoretical approaches. However, a final chapter partly makes up for this by presenting a detailed list of software tools used for biological modelling. The list is focused on biological pathways modelling, but many of the tools can be used in a more general context. Although no information is provided on the licensing, the list is quite detailed and the main features of the software are described.

The importance of theoretical formalisms able to model both qualitative and quantitative aspect of biological systems, and the advantages of modelling tools that promote interdisciplinary communication are remarkable underlying themes of the book. Moreover, the bibliographies provide a good starting point to deepen the understanding of the presented formalisms and tools.

The contributions appear to be mainly directed towards researchers with a preexisting modelling background and a basic understanding of biology. Readers with an extensive knowledge of theoretical systems biology will appreciate the examples and the diversity of tools, but will probably gain little from a theoretical point of view. Biologists with little knowledge of formal methods will probably have a hard time following theoretical arguments that sometimes focus on rather technical details, but will be exposed to a good selection of readily available tools that can be used to build *in silico* experiments with relatively small effort. The diagram and graphs are generally quite clear and helpful. However, the low resolution of some pictures make them quite hard to understand.

In summary, I would recommend this book to researchers with a basic knowledge of mathematical modelling who are looking for a showcase of theoretical system biology tools that can be readily used to build executable models of complex biological systems.

Dr. Luca Albergante,
College of Life Science, University of Dundee

Lewin's Genes XI

KREBS, JOCELYN E., ET AL.

Lewin's Genes XI.
Krebs, Jocelyn E., et al.
ISBN: 978-1-2840-2721-1 (International Student Edition [paperback released Jan 2013])
Publ: Jones and Bartlett Learning.

The XIth edition of this highly thought of text book was published earlier this year. As stated in the preface "much of the revision and re-organisation ....follows that of the third edition of Lewin's Essential Genes". Readers who have 'Lewin's Genes X' will find a major re-organisation has taken place in Part 2 to present a more logical approach for students. Within 'DNA Replication and Recombination', in Lewin's Genes XI the order of the chapters has changed as follows: 'Genes X' chap 11 is chap 12 in 'Genes XI'; Chap 12 is chap 14; chap 13 is 11 and chap. 14 is 13.

Various information changes have also taken place so keeping ' Lewin's Genes' an excellent , up-to-date and evolving volume in the fast moving world of genetics and cell biology.

And for fans of books in the Lewin style...a forthcoming title: a new and third edition of 'Lewins Cells' is due to be published in the USA by Jones and Bartlett Learning in December 2013. The probable UK price will be £55.99. The joint authorship of this book has changed so it will be interesting to see whether the style of the book will have been altered.

List price: £52.99. [Discount available to BSCB Members, see BSCB website]

Principles of Molecular Biology

BURTON E TROPP

Principles of Molecular Biology.
Burton E Tropp

ISBN: 978-1-4496-8917-9

Jones and Bartlett Learning.

This is the first edition of a book which is modelled on Tropp's 'Molecular Biology; Genes to Proteins' of which the fourth edition was reviewed in the autumn 2011 issue of the BSCB Newsletter.

The 'Principles..' volume is much more geared to students in their earlier years of courses or units on, or involving, molecular biology than is the 'parent' volume. Information in the 'parent' fourth edition has been carefully pruned so that when producing 'Principles of Molecular Biology' critical information has not been lost.

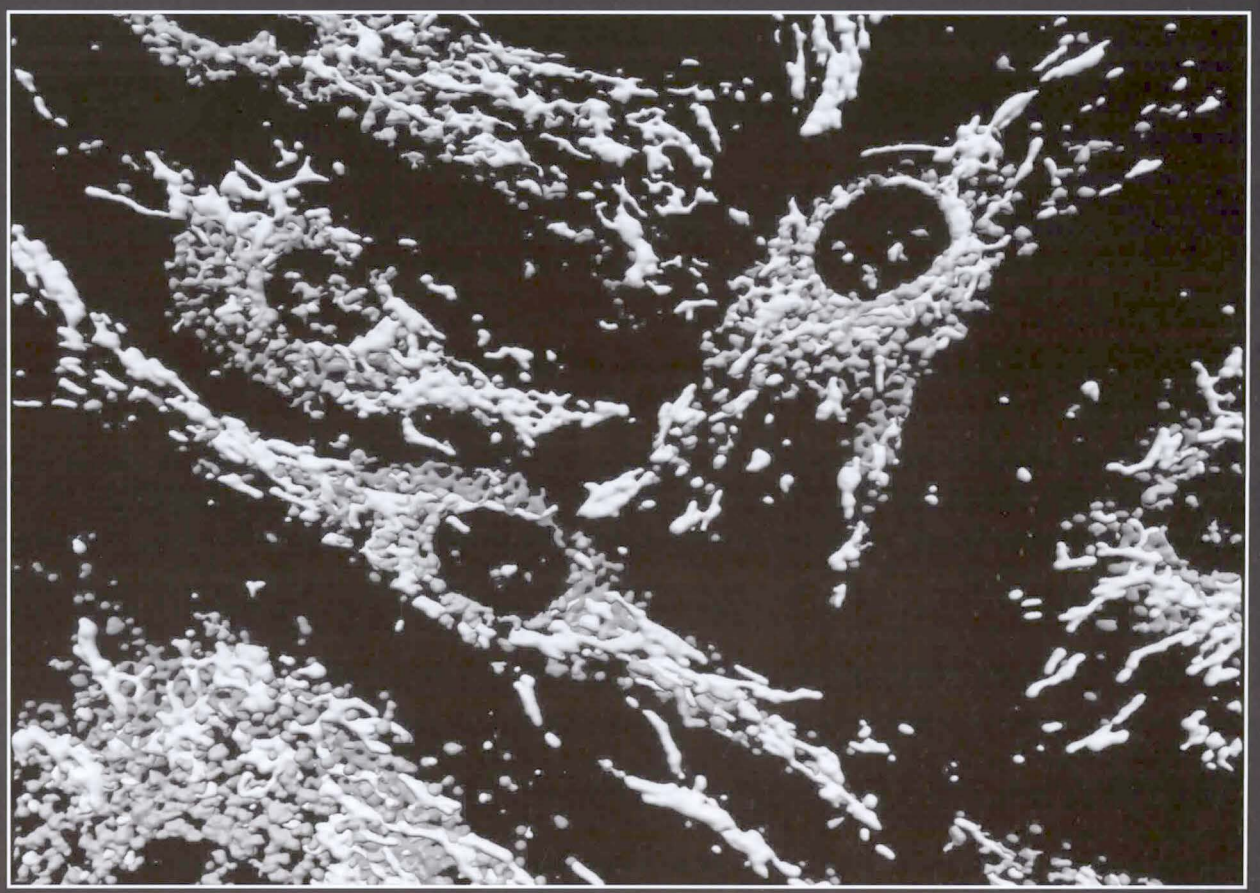
This more student orientated text although pruned of some detail, (especially in the field of RNA Polymerase II), has some additional and rather nice features including Special Topic boxes including 'In the Lab', 'Looking Deeper' and one that always interests people, 'Clinical Applications'. The book also has a quite extensive glossary which is especially helpful in a field of biology which has something of a language of its own. As with most texts written for students there is a 'Questions and Problems' section at the end of each chapter. This is followed by a Suggested Reading list. This list is not an indigestible list of references but selected titles listed under headings, the first one at the end of each chapter is variously headed 'General', 'Overview', 'Historical' or similar, so offering readers a means of seeing the bigger picture of molecular biology; a useful experience when studying biology at a molecular level.

List price £42.99. [Discount available to BSCB Members, see BSCB website]

CANCER RESEARCH UK

BEATSON INTERNATIONAL CANCER CONFERENCE

Co-sponsor ASSOCIATION FOR INTERNATIONAL CANCER RESEARCH



Powering the Cancer Machine

Sunday 6 July - Wednesday 9 July 2014

Speakers and Sessions:

Keynote Address: David Sabatini (US)

Opening Session: Mike Hall (CH), Bill Kaelin (US)

Metabolic Signalling A: John Blenis (US), John Cleveland (US), Daniel Murphy (UK), Davide Ruggero (US)

Metabolic Signalling B: Dafna Bar-Sagi (US), Boudewijn Burgering (BE), Grahame Hardie (UK), Brendan Manning (US), Rueben Shaw (US)

Metabolic Stress: Anne Brunet (US), Ralph De Berardinis (US), Alec Kimmelman (US), Oliver Maddocks (UK), Daniel Peeper (NL), Celeste Simon (US)

Therapeutic Opportunities: Susan Critchlow (UK), Eyal Gottlieb (UK), Georgia Hatzivassiliou (US), Chi Van Dang (US), Katharine Yen (US)

Aims of the Conference:

Metabolic rewiring is crucial for sustaining biomass growth and the survival of rapidly proliferating cells in a metabolically stressful environment. This meeting will focus on the oncogenic signals that initiate and regulate this metabolic rewiring, as well as on the adaptability of the metabolic network in response to stress. New therapeutic opportunities in this field will be highlighted.

Short talks will be granted to the authors of outstanding abstracts. Some financial assistance will be available to the presenters of these talks through sponsorship from the Association for International Cancer Research.

Website, on-line registration, payment and abstract submission instructions: http://www.beatson.gla.ac.uk/conf

For additional information please contact:

Conference Administrator, Beatson Institute for Cancer Research, Garscube Estate, Switchback Road, Bearsden, Glasgow, G61 1BD, UK

Tel: +44(0) 141 330 3953 Fax: +44(0) 141 942 6521

Email: conference@beatson.gla.ac.uk

Deadline for registration, payment and abstract submission: Monday 5 May 2014

CANCER RESEARCH UK | BEATSON INSTITUTE

AICR

Cancer knows no boundaries. Fortunately, neither do we.

Meeting Reports

14th International *Xenopus* conference

9–13 September 2012, Giens Peninsula, France.

Taking place in the sublime setting of the French Riviera, the 14th international *Xenopus* meeting was a fantastic opportunity for *Xenopus* researchers from around the world to congregate, share research and discuss their ideas. Given such a beautiful setting it only seemed appropriate for my fellow PhD student Vicky Hatch and myself to make the most of this experience by cycling to the conference from Turin, Italy. Having survived the beautiful 200-mile trip along the Mediterranean coast we arrived in Giens primed and ready for some stimulating science (and a shower). Fortunately for everyone, we got both.

Housed in the magnificent Belambra resort, talks focused primarily on the two most commonly studied *Xenopus* models, *Xenopus laevis* and *Xenopus tropicalis*, but also featured work using the Axolotl (*Ambystoma mexicanum*). The four-day event, featured a series of exciting talks, in which speakers discussed their research using Xenopus as a genomic tool and the subsequent bioinformatical analysis. Daniel Rokhsar (University of California, USA) gave an excellent summary of the challenges and recent successes of sequencing the *X. laevis* and *X. tropicalis* genomes. Sequencing the *X. laevis* genome has proven difficult due to it being allopolyploid, the result of a speciation event that occurred 40 million years ago. Despite this challenge the *X. laevis* genome has now been provisionally sequenced and is rightly lauded as a significant achievement that will be of great benefit to the *Xenopus* community as a whole.

The evening session was finished in style with a fantastic keynote lecture from John Gurdon (Gurdon institute, UK), which aimed to highlight the *Xenopus* models major contributions to our understanding of vertebrate development. It began with an overview of John's arguably most famous experiment; the creation of the first vertebrate clone using an intact nuclei from the somatic cells of a *X. laevis* tadpole. Focus moved quickly onto the probable future of *Xenopus* research, with John discussing his more recent work involving epigenetic regulation of DNA and intercellular signalling factors involving cell differentiation. As an introduction to *Xenopus* past, present and future, John set the tone for the rest of the event as a celebration of all things frog. Now it was time to challenge the concept of an "all

you can eat" buffet and get some well-deserved rest for the following day.

Monday talks started bright and early, the morning sessions focusing on cell signalling in early development. Rapid ex-utero development resulting in the relatively easy capacity to manipulate complex cell signalling pathways and subsequently developing tissues in *Xenopus* has historically made it a popular model in the study of developmental biology. Eddy De Robertis (HHMI, University of California, USA) displayed this emphatically by providing novel insights into BMP regulation in *Xenopus* dorsal–ventral patterning. It has been previously shown in *Xenopus* that BMP gradient disruption can lead to double axis formation, and that the gradient is maintained by a number of regulatory factors such as Chordin. Eddy has shown through antibody staining that chordin was found to be migrating during gastrulation between the ectoderm and the mesodermal layers in a space known as brachets cleft. Eddy hypothesised that this may well explain how chordin can regulate BMP signalling over long distances and also help pattern .

The afternoon session consisted of talks of stem cells, regeneration and chromatin remodelling. Bill Harris (University of Cambridge, UK) gave a talk linking the relationship between metabolism and tissue growth in the early developing embryo. Bill went on to show some compelling data that indicated that the early developing *Xenopus* embryo undergoes anaerobic lactate metabolism as opposed to aerobic glucose metabolism. This process, also described as the "Warburg effect" in cancerous tumours, was suggested to be prominent in proliferating rather than differentiating cells. The link to cancer may help us to understand how tumours continue to grow in an anaerobic environment.

The day's talks were concluded by an excellent keynote speech delivered by Marc Kirschner (Harvard Medical Scholl, USA), who spoke about his recent work in proteomics and its future with *Xenopus*. Dinner and some stimulating discussion over the numerous posters on display rounded off a fine day and another late night.

Tuesday began by looking at the broad topic of tissue patterning and organogenesis. Naturally this covered a broad range of research, including some interesting work by Oliver Wessely (Cleveland Clinic, USA) who showed the importance of micro RNA's towards normal kidney development. Aaron Zorn (Cincinnati Childrens Hospital, USA) also presented his work in which he demonstrated the importance of BMP and WNT signalling in *Xenopus* lung development.

The afternoon sessions delivered work on the cell cycle and cell dynamics. Roberto Mayor (University College London, UK) explained how contact inhibition can be the driving force behind neural crest migration and patterning. He proposed a model where neural crest cells cluster together via C3a signalling and chase placode cells secreting Sdf1. In a process described by Roberto as "chase and run", placode cells only migrate on contact with the neural crest cells, pulling the neural crest cluster it an appropriate direction and thereby allowing them to form structures such as the brachial arches. This final session ended, bringing us to another evening of food, wine and of course, poster presentations.

The combination of 3 days hard science combined with the promise of a mid day excursion suggested that sustained concentration would be a matter of willpower. Fortunately, this was not the case as the session provided numerous examples of what quality research can be done when put in the right hands. Wednesday arrived with neural development as its morning topic featuring leading experts in the field including Carole LaBonne (Northwestern University, USA) and Jean-Pierre Saint-Jeannet (New York University, USA). At this point I would be remiss (and my supervisor beside himself) if I did not mention the excellent talk provided by my colleague and fellow cycling buddy Vicky Hatch (University of East Anglia, UK). Presenting her work on neural crest development, Vicky demonstrated the potential for an additional layer of regulation to neural crest differentiation by the process of transcriptional elongation.

The afternoon afforded us the opportunity to explore the local island of Porqurolles, a beautiful nature reserve that we were permitted to colonise for a few hours to enjoy the sun and sea before we were shepherded back into the lecture theatre.

The next session centred on axon guidance, immunology, physiology and evolution. The diversity of subjects kept us on our toes, ranging from Louis Du Pasquier's (University of Basil, Switzerland) talk towards *Xenopus* immune system evolution, to Christine Holts (University of Cambridge, UK) research regarding RNA-based axon specification. The day ended with a final farewell dinner, complete with music, dancing and the consumption of a reasonable amount of free wine.

The more responsible of us having finally dragged our way back to the lecture theatre; the final Thursday morning session began. Nancy Papalopulu (University of Manchester, UK) gave an interesting talk on how miR-9 can control ultradian oscillation during neural progenitor maintenance. In addition, Caroline Hill (The Gurdon Institute, UK) showed us how small RNA and transcriptome profiling of early *Xenopus* embryos can be used to identify new regulators of early development.

With the conference drawing to a close it was time to say goodbye and begin our long cycle to the Marseille airport for the flight home. Overall, the entire experience was an extremely positive one and the quality of the talks and location have set the bar extremely high for the next International *Xenopus* meeting in 2014 and beyond.

Adam Hendry. University of East Anglia.

The American Society for Cell Biology Annual Meeting

15–19 December 2012. The Moscone Center, San Francisco, CA, USA.

The 52nd annual meeting of The American Society of Cell Biology took place in San Francisco, based at the Moscone Centre in the downtown area of the city. This was my first time attending a conference of this size and the scale of the meeting blew me away. There were approximately 7000 delegates from a range of scientific and industrial backgrounds, as well as hundreds of exhibitors promoting innovative and exciting new technologies.

The ASCB meeting is one of the biggest cell biology meetings in the world. It was clear from the outset that the meeting organisers really put an emphasis on graduate student attendance and a large proportion of the delegates being made up by graduate and undergraduate students reflected this.

Arriving early Friday evening after travelling for nearly 24 hours, we headed to bed to be ready for the start of the talks on Saturday afternoon. However my body had other ideas and woke me up at 7am giving me a chance to plan out the talks and events I wanted to attend. The conference started on Saturday afternoon with a set of special interest subgroups. I attended the subgroup entitled "Aneuploidy: Causes and Consequences", hosted by Daniela Cimini (Virginia Tech, USA), which provided some fascinating presentations and subsequent discussions surrounding aneuploidy relating to cancer development and aging. These smaller sized subgroup meetings really allowed for audience involvement and saw a lot of graduate students asking questions regarding the research being presented.

The evening session kicked off with welcome talks from Ron Vale (President of the ASCB) and Tony Hymen (Program chair, 2012 meeting) who revealed that for the first time, members of the public had been invited to attend the opening ceremony of the meeting. Tony revealed that this year, separate "threads" would be running throughout the meeting, with the threads this year focusing on cell biology and medicine as well as cell biology and the physical sciences. This theme of combining cell biology with physics and mathematical modeling was apparent throughout the whole meeting, providing some fascinating insights about how to tackle complex biological problems. Dr. Steven Chu, US secretary of Energy and Arthur Levinson, chairman of Genentech Inc. and Apple Inc., delivered the two plenary talks of the evening. The talk from Steven Chu was of particular interest as he described how his illustrious career had led him from his early position as a Nobel Prize winning physicist to his current position within the US government.

The subsequent four days saw many talks by some of the biggest names in the cell biology field. I often felt a little overwhelmed and torn between which talks to attend, but I can safely say that I was never disappointed by my choices. One talk of particular interest was

delivered by Alejandro Sánchez Alvarado (HHMI/ Stowers Institute) on Monday morning during the "New model systems for cell biology" symposium. During his presentation, he talked in great detail surrounding the use of the model organism *Schmidtea mediterranea* to model regeneration. The results he presented surrounding the stem cell mobilisation to sites of injury during regeneration was captivating and appealed to even the most seasoned cell biologist.

As well as the main symposia and frontier symposia that were held each day, the program also included science discussion tables which allowed for students, post-docs or even PIs to sit down and discuss their research with scientists both in their field and from other disciplines. I found the science discussion tables I went to very helpful and certainly gave me new ideas of where to take my research as well as making useful contacts and offers of reagents and help.

My poster was on display on the Monday afternoon of the conference and it gave me a great platform to talk to other delegates about the research I was doing. My work seemed well received with many people offering their advice and criticism surrounding my techniques and hypotheses. There were over 3,000 posters on display at the ASCB this year across the 5 days of the conference, but I managed to see a lot of interesting and exciting work surrounding my subject area and across the wider field. My standout poster from the conference has to be from a group of Stanford University researchers (Prakash group) who have developed the

"Foldscope", a fluorescent origami microscope that is capable of resolving down to 700 nm yet costing less than a dollar to produce. Its use in diagnosing blood born diseases in developing countries would be invaluable.

I had a fantastic time at the ASCB annual meeting. As I sit here writing this report eating a comically large American doughnut, I've realised that this conference is more than just an excuse to visit an amazing part of the world. The science on show has been second to none and being able to network with some of the biggest names in the field has been invaluable. Putting faces to the names I see in papers I read everyday has helped me to see that these scientists are often very approachable and open to collaborative discussions. I couldn't recommend the attendance of this conference and conferences like this highly enough and am very grateful for the Honor Fell/Company of Biologists travel award that made my attendance of the conference possible. I cannot wait to get back to the lab to try out all the new ideas that I've developed since being at the conference!

Alistair Davies (a.m.davies@dundee.ac.uk)
1st Year PhD Student, Swedlow Lab Group
Wellcome Trust Centre for Gene Regulation and Expression, Dundee, UK.

The "British Young Cell Biologist" award that the BSCB presents each year during the annual Spring meeting (it's the prize for the best poster) pays for travel and accommodation costs to attend the annual meeting of the American Society for Cell Biology, and the ASCB contributes by offering free registration for the conference. So a very generous prize!

In December 2012, I was fortunate enough to attend the American Society for Cell Biology's Annual Meeting for a second time, this time in San Francisco. Having thoroughly enjoyed last year's meeting, I was very excited to return to such an excellent and diverse conference.

The aim of the meeting, organised by Tony Hyman and Ron Vale, was to explore science at the interfaces of cell biology with physics and medicine. The keynote speakers were selected to exemplify the success of such interdisciplinary approaches.

The first speaker was U.S. Secretary of Energy and Nobel laureate in Physics Steven Chu, who spoke about how he has applied single-molecule analysis techniques used in physics to understanding cancer signaling pathways. I was very impressed by both the science he presented, and also the diversity of his career path.

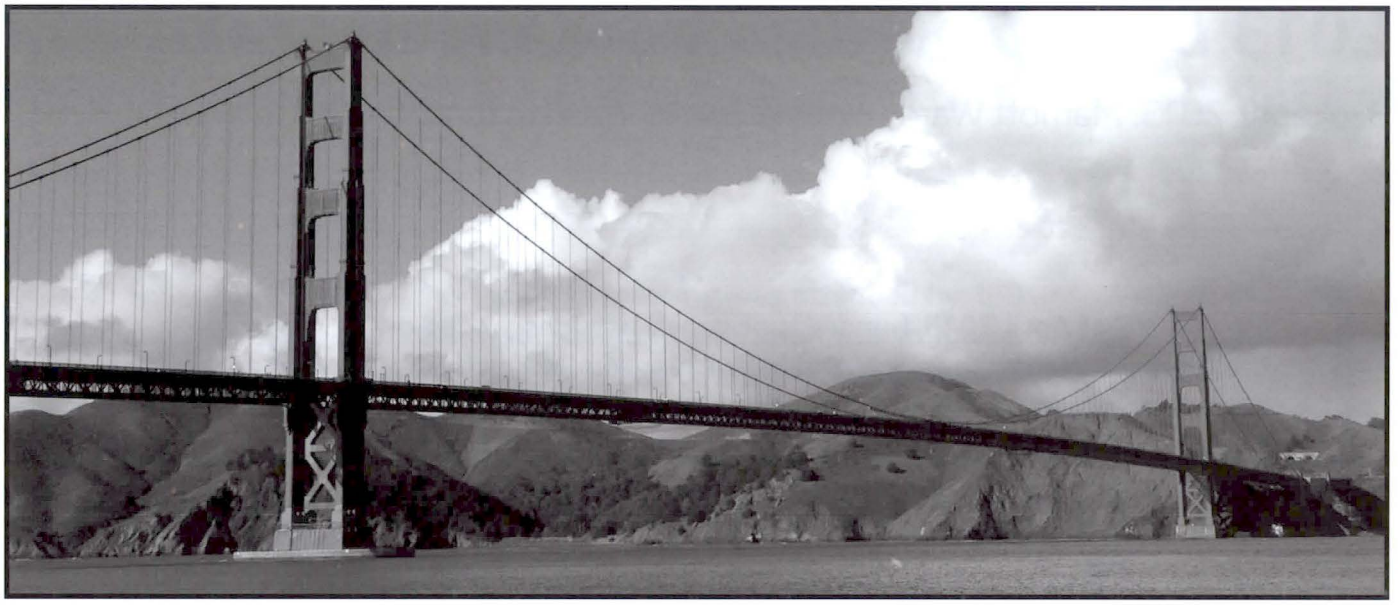
The second keynote speak was Arthur Levinson, Chairman of Genentech and Apple. He described drug discovery research at Genentech, the assessment of new cancer therapies and summarised some of the successful drugs either on the market or in clinical trials. Levinson started his career with a PhD in biochemistry, and while his current job is business-orientated, the clarity and scope of the science presented in his talk were very impressive. He ended by giving an optimistic view of cancer therapy discoveries in the next decade.

This ASCB meeting was novel because of the organisers' attempt to broaden the scope of cell biology research by combining it with other disciplines; but it was also the first ASCB meeting to have invited members of the general public to attend the keynote talks. This achieved three aims: first of all to increase public interest in science, secondly to improve science communication with the public, and thirdly to give some accountability to the research, much of which is funded by charitable or public money. It led to many interesting and challenging conversations with members of the public during the drinks reception after the keynote talks. I feel that this was an excellent initiative by the conference organisers, and should be further emphasised in future meetings.

The rest of the talks were of excellent quality, and the many parallel sessions were enough for anyone to find their topic of interest. For me, this was the cell cycle – the focus of my own doctoral research – and some of the talks that caught my attention concentrated on understanding the temporal regulation of cellular structures during the cell cycle. One was a talk by Susana Godinho (Harvard Medical School) who showed the link between centrosome amplification and cancer cell invasiveness, illustrating the need for accurate control of centrosomal replication in both time and number. Shawn Jordan (Columbia University) presented his work mapping with great precision the time-dependence of cytokinesis on proteins such as myosin II. He used fast inactivation of temperature-sensitive mutants in C. elegans, producing some truly remarkable and beautiful movies. A third talk was by Iain Cheeseman (Massachusetts Institute of Technology; no relation as far as we know!), one of this year's ASCB Early Career Life Scientist Award recipients, who showed the importance of assembling and disassembling kinetochores at the right time during the cell cycle to ensure accurate chromosome segregation. These talks all highlighted the need to understand not only the functions of proteins and protein complexes, but also how their functions vary over time and how this temporal control is achieved, a topic that has been a major focus during my PhD.

The many hundreds of posters presented were excellent, and the difficulty was in choosing which posters to attend during each session! The poster sessions were brought to a close with the yearly Cell Dance competition, where scientists can present movies they have acquired in an amusing manner.

A traditionally strong focus of the ASCB meetings is networking, particularly for young scientists, and this year was no exception. Science discussion tables allowed many PhD students and



postdoctoral researchers to introduce themselves to experts in their own fields, and discuss their research projects. A social event for young scientists was also organised in a nearby bar, to give them the opportunity to meet each other and make contacts. Personally, I found that many of the people I met at last year's ASCB meeting were in attendance again this year and we hadn't forgotten each other, making the conference very enjoyable and illustrating how successful the networking activities are.

Overall, I found this meeting excellent, and the city of San Francisco made it even more so, as I took a few days to explore the region. I would strongly recommend any young scientists to attend if they have the opportunity to do so, as the conference is teeming with exciting science, truly making it a global hub for cell biology, and also a great way to find the next step in one's career path.

I am very grateful to the British and American Societies for Cell Biology for the opportunity to take part in this conference, and hope to attend again soon.

- Liam Cheeseman, University of Liverpool

{ A 'mega-meeting' of over 7000 attendees. Stadium sized symposia and an aircraft-hanger sized hall with a thousand posters. A labyrinth of corridors and meeting rooms to navigate, crowds of fellow scientists steam-by. Notes are posted on bulletin boards for missing colleagues lost in the vastness of the convention center. Everything is bigger in America. This is not the sort of meeting I am used to... }

Attendance at an ASCB annual meeting is a great opportunity that I would recommend to any other young scientist. There are both the inspiring main symposia of furiously high quality and breadth and mini-symposia and poster sessions that can be more closely relevant to your own investigations. This meeting can however maybe lack some intimacy that you might find with smaller meetings and could seem impersonal.

Particular highlights for myself were talks by Steven Chu, the U.S. Secretary of Energy and Nobel laureate, and by Arthur Levinson the Chairman of Genentech and Apple. Both talks were brilliantly delivered and great examples of have to present complex and important subject matters in an entertaining and understandable manner. It is also a mark of the stature of the ASCB meeting that it can attract such notable speakers for the same session! Steven Chu covered a wide-range of projects that dealt with collaboration between physical sciences and cell biology (an official trend for the meeting), whilst Arthur Levinson talk climaxed with the exciting prospect of combinational cancer drug treatments that may overcome the problem of relapse following successful treatment (a topic that appeared to trend fairly strongly through the meeting). During the poster sessions there was also the opportunity to finally meet scientists in the same field as my own (Cell Polarity), whose papers I had digested but whom I had never actually met and I particularly enjoyed now being able to put a face to a name and for the close discussions that ensued.

Finally San Francisco isn't such a bad place to go for a meeting either, and my lab-mates and I enjoyed the scenery and excursions that this beautifully placed city has to offer.

James Dodgson
University of Cambridge.

2013 *Drosophila* Research Conference

3–7 April, 2013. Marriott Wardman Park Hotel, Washington DC, USA

On the 3rd of April 2013, hundreds of geneticists descended on the Marriott Wardman Park Hotel in Washington DC for the annual American fly meeting. This was a stimulating, well-organised and at times frenetically busy meeting, with a packed schedule of talks and workshops running over 4 days.

At such a big meeting it can be hard to move between parallel sessions or even find where you're going, but the organisers did a great job of ensuring that everyone stuck to time and I only gatecrashed the wrong conference once by mistake (thank you for being so understanding, Grocery Manufacturers of America).

The plenary talks from well-established researchers were all excellent. I particularly enjoyed two talks on axonal degeneration from Marc Freeman (University of Massachusetts, USA) and Nancy Bonini (University of Pennsylvania, USA), as well as Leanne Jones' (Salk Institute, USA) beautiful exposition of her group's work on the regulation of the testis germline stem cell niche, and Chris Jiggins' (University of Cambridge) more unexpected contribution on the topic of how butterfly wing patterning evolves. Terry Orr-Weaver (MIT, USA) gave an elegant presentation on the regulation of replication and polyploidisation after being awarded the 2013 FASEB Excellence in Science award.

Presentations from more junior researchers were also of very high standard. Weizhe Hong (Caltech, USA) was awarded the Larry Sandler award for best student thesis and gave a great talk on neuronal connectivity in the olfactory system, and I particularly enjoyed the platform sessions on "Cell Biology and the Cytoskeleton", "Cell Division and Growth Control" and "Stem Cells". The work I found most exciting was introduced by Kalpana Makhijani (UCSF, USA), who discussed how signalling from sensory neurons regulates haematopoiesis during larval development. My own research focuses on the regulation of proliferation and differentiation in neural stem cells in the optic lobe, so I was intrigued to learn about a system where differentiated neurons signal back to the stem cell niche and instruct stem cells to divide.

Not only did I soak up a lot of information during the talks, but I also managed to impart some of my own knowledge and discuss my work with a lot of scientists during the poster sessions (to the extent that I was losing my voice by the end). The size of the meeting made it difficult to visit all the posters – there were at least 800 on display – but I had some great discussions, despite being hidden away in the "room of shame" reserved for late abstract submissions. Indeed, attending this meeting afforded me some invaluable networking opportunities as I'm currently looking for postdocs abroad. I was able discuss my work with several group leaders whose work I was interested in, and these meetings served as a jumping-off point for arranging formal interviews.

I'm not yet sure what the future holds, but I am very grateful that a BSCB Honor Fell award made travelling to this meeting possible!

Katrina Gold
The Gurdon Institute and Department of Physiology, Development & Neuroscience, University of Cambridge

International Gap Junction Meeting

13–18 July 2013. Charleston, South Carolina, USA

The 2013 edition of this biannual meeting was attended by 189 delegates. Registration on the Saturday afternoon was followed by an opening reception in the evening at South Carolina Aquarium. This was the perfect venue to make new acquaintances, having plenty of open space for delegates to mingle and a large variety of fascinating aquatic species which provided a great talking point. A delicious buffet of local cuisine and southern style musical entertainment were also provided giving a real feel of city's character.

The platform presentations began on Sunday morning and covered a wide variety of topics over four and a half days which were divided into 13 sessions: Connexin Structure and Function, Beyond Connexins, Channel Gating and Neurotransduction, Vasculature and Muscle, Vascular Development and Pathology, Therapeutic Targeting in Skin Disease and Deafness, Quality Control and Post-Translational Regulation, Trafficking and Signal Transduction, Barrier Pathology and Repair, and Bone and Cell Growth. The range of topics delivered by speakers from all corners of the globe brought realisation to me of the diversity and worldwide scale of gap junction research. It was fascinating to learn about other scientists' work, not only the research which was related to my own work but also to hear about other areas of connexin and pannexin research and different research methods.

Posters, which were presented during two evening sessions, on Sunday and Tuesday, again covered a wide variety of topics. My poster was entitled 'A combined mathematical and experimental approach predicts the influence of connexin43 on cell migration events' and was presented on Sunday evening. This was my first poster presentation and therefore I was slightly apprehensive especially as a large majority of the scientists present were experts in their field. However everyone who spoke with me was very friendly and I received a positive response to the data I presented and the concept of mathematical modelling, which was encouraging. These sessions were well attended with both sessions running over the allotted time, giving an indication of the high level of interest and support provided to the presenters by fellow delegates.

There were also two Roundtable Discussion sessions, each with seven separate topics to choose from, held for an hour after lunch on Monday and Tuesday. These sessions brought together researchers with similar interests and were led by experts in the particular area, providing an opportunity for open discussion and debate on current issues relating to each specific topic. I attended the 'Non-junctional/non-channel connexin function' discussion on Monday led by Professor Mario Delmar of New York University and the 'Connexin hemmichannel regulation' discussion on Tuesday led by Professor Luc Leybaert of Ghent University. Both sessions were very informative and provided me with an insight into the differences of opinion held by individuals within the same research area together with a realisation that what is currently known about connexin proteins is really just the tip of the iceberg.

I would like to thank BSCB for helping to fund my trip by awarding me an Honor Fell Travel Grant. This was an invaluable experience which has given me an appreciation of the worldwide research that is currently taking place within the gap junction field and enhanced my awareness of issues that remain unresolved. It also gave me the opportunity to present my data and receive valuable feedback from other scientists within the gap junction community. In addition, attending the conference has enabled me to put faces to names from publications I have read and meet with many people within my research area that I would now feel able to contact without hesitation during my future work.

Claire Lorraine, Glasgow Caledonian University

C4 + CAM Plant Biology

6–10 August 2013. Champaign-Urbana, Illinois.

My journey to the C4 + CAM symposium got off on the wrong foot as I boarded the airport bus to be greeted by a driver with obvious contempt for both non-UK nationals and luggage, an unfortunate worldview for a driver on the Heathrow express.

The penetrating stare while boarding the bus and withering sarcasm of his onboard announcements were visibly deflating to even the most eager holidaymakers. My trip was no holiday however, this was a pilgrimage. Having heard, told and retold the 'C4 story' repeatedly during the 4 years of my PhD, I was looking forward to meeting so many new brothers and sisters in the field, each with their own twist to the tale. It was to be a photosynthetic orgy, and not even a racist bus driver was going to put me off.

Having been invited to go fishing in Iowa by an elderly gentleman outside the airplane toilets, I arrived in the Midwest in excellent spirits. With nothing to see for miles around but corn, this was clearly the place to be for fans of the C4 pathway. The conference was bookended by satellite meetings for various consortia trying to introduce either the C4, or CAM, pathway into crop species, initiating a theme of crop photosynthetic improvement that ran throughout the symposium.

The schedule was packed with interesting and diverse talks from a global range of speakers. To pick out a few highlights among many, Howard Griffiths (University of Cambridge) kicked off the conference with an impassioned call to arms for the carbon concentrating collective, providing an enjoyable historical overview of the field. Erika Edwards (Brown University, US) and Pascal-Antoine Christin (Sheffield University) presented their work on the molecular and anatomical preconditioning events that may have enabled the independent evolution of C4 and CAM on so many occasions in two very impressive talks. Peter Westhoff (Heinrich-Heine University Dusseldorf, Germany) detailed some highly elegant promoter experiments that have elucidated specific motifs that lead to cell specific expression of glycine decarboxylase in Flaveria. Tom Brutnell (Danforth Plant Science Center, US) updated the meeting with exciting progress his group is making in transforming the emerging C4 model Setaria viridis and identifying changes in leaf transcriptomes between C3 and C4 grasses, work that will be of key importance when attempting to introduce the C4 pathway into C3 crops. Expanding on alternate models for C4, John Mullet (Texas A & M University, US) described his group's work on developing sorghum as an energy crop, highlighting the simplicity of using it as a genetic model. The enormous phenotypic diversity that has been generated in different sorghum lines in a relatively small space of time was remarkable. To close the conference, Steve Long (University of Illinois, US) presented his work on temperate C4 species and their surprising success in cool climates. Jane Langdale (University of Oxford) also spoke.

As a refreshing break amidst 12 hours of talks daily, trips to the local SoyFACE (Free Air CO2 Enriched) and EBI Energy Farm field stations were arranged in the middle of consecutive days. At SoyFACE researchers are investigating the effects of increased CO2, ozone and temperature in soy and maize field plots while work at the energy farm is looking to develop different species, particularly grasses, as energy crops. The scale of the experiments at both sites was overwhelming. Everything is bigger in America, not least the grasses.

The experience of attending was both enormously enjoyable and useful. It enabled me to get encouraging feedback on my work (even if finding my poster was half the size of everybody else's led to long repressed feelings of insecurity) and discuss the work of leading investigators in the field with the scientists themselves. I would like to thank the BSCB and the Genetics Society for helping to make attending the meeting possible.

Jim Fouracre, University of Oxford

Mechanochemical Cell Biology Meeting

2–4 September 2013, Low Wood Bay Hotel, Lake District.

For me, attending a conference outside my immediate field is always a delightful experience. As a bacterial cell biologist, I found this Mechanochemical Cell Biology Meeting very inspiring. It was organised by Anne Straube (Centre for Mechanochemical Cell Biology, University of Warwick) and Justin Molloy (MRC National Institute for Medical Research).

"I wandered lonely as a cloud
That floats on high o'er vales and hills,
When all at once I saw a crowd,
A host of golden daffodils;
Beside the lake, beneath the trees,
Fluttering and dancing in the breeze."

The lord of the ring

Jan Löwe (MRC LMB) presented some latest data about the constriction mechanism in bacteria. The tubulin homologue FtsZ forms a ring-like structure (the Z-ring) to establish a scaffold that sequentially recruits other cytokinetic proteins, and then the Z-ring constricts to initiate cytokinesis. A controversial aspect of current models of Z-ring constriction is whether or not FtsZ condenses. Using electron cryo tomography, Jan and colleagues found that double filaments of FtsZ encircle the septum in one large helix. They also reconstituted the constriction process in an *in vitro* system based on liposomes. The in vivo and in vitro architecture of the Z-ring suggests a sliding filament (condensation) mechanism for constriction.

Make things as simple as possible, but not simpler

David J. Odde (University of Minnesota, USA) showed that a 2D model can better describe the assembly kinetics of microtubule. Although keeping the dimensionality as low as possible reduces computational complexity, the current 1D models cannot explain their observation that the subunit dissociation rate from a microtubule tip rises as the free subunit concentration increases. However, this finding is consistent with a 2D model for microtubule assembly in which the microtubule tip structure changes as a function of free-tubulin concentration. Besides, the finding that tubulin association and dissociation rates are an order of magnitude higher than previously estimated provides a new perspective on how microtubule-associated proteins and anticancer drugs might control microtubule assembly.

Crowd management

Antoine van Oijen (University of Groningen, Netherlands) reminded us that in addition to cytoskeletons and associated motors, there is another wonderland, composed of processes occurring on DNA, for mechanochemical cell biologists. By combining mechanical manipulation with optical microscopy, Antoine's group study DNA replication at the single-molecule level. Before, a generally applicable method was lacking for single-molecule imaging of bio-macromolecules at physiological concentrations. Antoine and colleagues solved this problem with a new imaging approach called PhADE (PhotoActivation, Diffusion and Excitation). He demonstrated the power of PhADE by applying this method to visualize individual DNA replication complexes in undiluted *Xenopus laevis* egg extracts. The real-time, single-molecule imaging data of origin firing and fork movement were fascinating.

Soft as fat, stiff as bone

How mechanics control gene expression to modulate tissue differentiation remains unclear. An appealing idea is that certain mechanical links between the nucleus and the extracellular matrix can command cell fate, and the mechanical force mediates these effects by altering the biophysical properties of the nucleus. Dennis Discher (University of Pennsylvania, USA) showed that an increase in cell tension reduces the turnover of lamin A in the nucleus, which then causes an accumulation of the mechanosensitive transcriptional regulator YAP. An increase in lamin A also triggers the serum response factor (SRF) signaling pathway that controls the actin cytoskeleton. Therefore, these findings link tissue specificity and extracellular matrix stiffness to nuclear tension.

As cute as a bug's ear

Daniel Robert (University of Bristol) uses insects as model systems to improve our understanding of audition. Daniel and colleagues used laser Doppler technology and micro-computed tomography to measure nanoscale vibration and dissect the anatomical consequences in one of the smallest ears known. Their results show that the hearing organ in bush crickets is so sophisticated that all key nanomechanical steps of auditory processing of vertebrates can be found in this tiny apparatus. The study of bush cricket ear opens new possibilities for the development of bio-inspired acoustic sensors and new options for audition research.

Motor proteins at the crossroads

Erika Holzbaur (University of Pennsylvania, USA) told stories about motor coordination and engagement during active axonal transport. Many cargos transporting along microtubules have both plus-end directed kinesins and minus-end directed dyneins bound simultaneously. Erika and coworkers endeavor to discover the mechanisms coordinating the collective activities of these oppositely-oriented motors. They found that the scaffolding protein JNK-interacting protein 1 (JIP1) interacts with the kinesin heavy chain (KHC) and relieves KHC autoinhibition. The direct binding of the dynactin (dynein activator) subunit p150Glued to JIP1 competitively inhibits KHC activation. Moreover, the JNK-dependent phosphorylation at S421 in JIP1 serves as a molecular switch to regulate the direction of axonal transport. They also found that end-binding proteins (EBs) and cytoplasmic linker protein-170 (CLIP-170) interact with microtubules and recruit the dynactin in an ordered manner, leading to the initiation of dynein-driven retrograde transport.

Guv, may the force be with you

Aurelien Roux's (University of Geneva, Switzerland) group use micromanipulation techniques and giant unilamellar vesicles (GUVs) to study the biophysics of dynamin and clathrin. In his talk he showed that membrane tension affects clathrin binding: hypotonicity results in no binding, isotonicity results in flat coating, and hypertonicity allows budding of vesicles. By measuring the forces of clathrin polymerization, his group found that high bending energy of the membrane prevents clathrin from polymerization.

I could not mention other excellent talks here, but all the presentations were highly inspiring. Altogether, in this well-organized conference the diverse range of talks and delegates provided a multidisciplinary forum for the exchange of ideas, and gave junior researchers the opportunity to meet many of the leaders in the field. I am very grateful to the BSCB for my Honor Fell Travel Award, which sent me to a dream location to enjoy the enthusiasm of brilliant scientists.

Sheng-Wen Chiu
Department of Biochemistry, University of Oxford

Hydra IX – The European Summer School on Stem Cells and Regenerative Medicine

7–14 September 2013. Hydra, Greece

The European Summer School on Stem Cells and Regenerative Medicine, organized by Clare Blackburn (University of Edinburgh) and Austin Smith (University of Cambridge), is held annually on Hydra, a small Greek island one hour from Athens. The conference covers many aspects of stem cell research including, molecular circuitry, clinical applications, fundamental biology of embryonic and tissue stem cells, new techniques and ethical issues related to the field.

This year there were almost 60 delegates (mostly post-graduate students) and around 25 speakers. All the presentations were given by top researchers in the stem cell field and each lecture started with an overview of the specific field followed by the explanation of the most recent results.

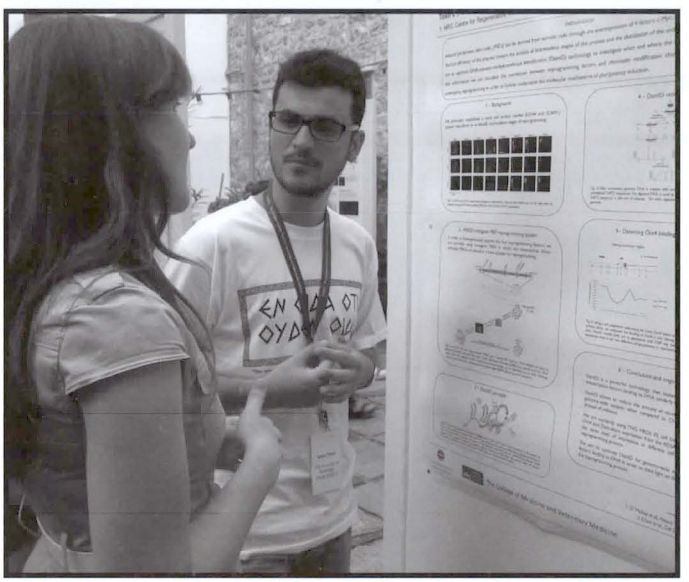
The first impressive plenary lecture was given by Austin Smith who divided his presentation in five chapters. After a general introduction involving the historical background, he explained the meaning of the stem cell "ground state". He then elucidated the molecular mechanisms that finely regulate this state and how cells can maintain and/or escape from this specific condition that recapitulate in vitro a specific stage of embryonic development. It was exciting to see how several years of research perfectly fit into a bigger systematic picture.

The School consisted of four other main sessions, the first of which was focused on paradigm stem cell systems. In particular, epidermal, intestinal, neural, mesenchymal, muscle, pancreatic and hematopoietic stem cells were described by outstanding researchers. It was very useful to listen and learn more about the several kinds of tissue specific stem cells, as it is usually very difficult to keep updated with recent advances and discoveries.

The second session was about the regulation of cell identity and fate decision in vitro and in vivo. Prof. Ian Chambers (University of Edinburgh) elucidated the fine-tuned transcriptional regulation of embryonic stem cells, while Michaela Frye (University of Cambridge) introduced us to the recently discovered mechanism of RNA methylation and the role that it plays in cell fate decisions. Sophie Jarriault (IGBMC) showed us recent findings about the in vivo reprogramming process that takes place in C. Elegans, while Shahragim Tajbakhsh (Pasteur Institute) talked about the meaning (and the controversial aspects) of symmetric and asymmetric cell division in the regulation of cell fate.

The third session was about degeneration, regeneration and cancer. We delved into important concepts such as ageing, the role of the niche during this process, the maintenance of homeostasis in adult tissues, the regeneration of organs and tissues and degeneration toward cancer stem cells. Within this session, there was also a very interesting discussion about the regulation of stem cell therapies. It was surprising to discover how many issues are still unsolved and how new ones emerge as science progresses with new discoveries.

The last session was focused on clinical applications of stem cells and it was a good chance to realize how challenging the optimization steps are before moving toward clinical trials.



Other interesting activities included in the Summer School program were the very useful "inspire sessions" (that covered topics related with public engagement, information can be found on www.eurostemcell.org) and the small discussion groups. These provided a chance for all the delegates to talk and interact with the lecturers to further clarify aspects of the different sessions in a very relaxed and informal way.

Each day there was a poster session, lasting around two hours. This gave me the great opportunity to present my data in a relaxed environment to both other students and PI's, that provided me with valuable feedback one my project.

Last but not least, we had time off every day, that allowed us to really enjoy the Mediterranean sunshine and the Greek cuisine! A special thank you to the organizer for the amazing BBQ and boat trip and for the memorable opening and closing dinners in superb locations.

Most of all, I'd like to thank the British Society for Cell Biology for awarding me a travel grant that gave me the opportunity to attend such a stimulating summer school!

Luca Tosti, University of Edinburgh

BSCB Postdocs

Hello from your new postdoc rep...

Alexis Barr

Hello Postdocs! I'm Alexis, your current BSCB Postdoctoral rep. I thought I would introduce myself to you all as it's my role to represent us at the BSCB Committee meetings. So please do get in touch with anything you would like to see the BSCB doing more of to help Postdocs – whether its on the academic side or socially to help you get to know other Postdocs working in the UK. Alongside this I also help to coordinate the social event that we hold with the PhD students at the BSCB Spring meeting. Again, if you have comments and suggestions do let me know.

We've already done a few things to help the BSCB serve you better. The main one is to beef up the Postdoc Area on the BSCB website to include a list of sources of funding for Postdocs working in the UK, along with a short description of what each one has to offer. Even if you're British and have stayed in the UK to pursue your Postdoctoral work there are still fellowships available to you. You'll also find a link on the website to Postdoc associations around the UK that you might want to consider looking into joining.

I thought it might be useful to say a bit about who I am. I'm currently a Postdoc with Chris Bakal at The Institute of Cancer Research in London. At the moment I am working on two projects – one focussed on mitotic spindle assembly and one measuring and modelling the signalling dynamics driving the G1/S transition during the mammalian cell cycle. I did my PhD in Cambridge with Fanni Gergely working on centrosomes and microcephaly.

Outside the lab I enjoy taking part in science outreach activities. I'm currently a STEM ambassador and have been to several science fairs to provide careers advice and tell children about what scientists do every day. Certainly when I was young, I had no idea that I could have a job as a scientist. I just really liked biology. I also recently took part in the BSCB sponsored "I'm a Scientist, Get Me Out of Here!" competition. I can't recommend it enough and it really doesn't take up much time. I had so much fun taking part and some of the questions you get asked are really insightful. I also learnt a lot (there was a fair amount of Google searching for some of the more obscure questions). So if anyone does know the answer to "if you shave a Badger, would it's skin be black and white underneath?" then do let me know. I've never done the experiment.

I hope to meet you all at the BSCB Spring Meeting in Warwick. Please come and find me. In the meantime, please, please do email me if you have any suggestions for what you would like to see from the BSCB to help Postdocs.

Looking forward to seeing you in March,

Alexis (alexis.barr@icr.ac.uk)

BSCB PhDs

...and from your new PhD rep!

Clare Mills

Hi! I am your new PhD student representative here at BSCB, taking over the role from Kimberly Dodd. So to introduce myself, I am currently a PhD student at UCL, in the Cell Biology department at the Institute of Ophthalmology as part of the Balda research group. I have just started the second year of my project, working on the development of inhibitors for the prevention of epithelial degeneration. Before this I also completed my undergraduate degree in Molecular Biology here at UCL.

I am delighted to have the privilege of helping young scientists views be heard and cannot wait to get into the tasks of organising student workshops and social events. I am looking forward to organising and supporting activities which aim to involve more people in science, give a voice to their views and improve and encourage networking. If you have any great ideas for new events I would love to hear them! Also if anyone is keen to write an article for the student column get in touch.

I will also be attending the BSCB committee meetings so if you have any suggestions, issues or comments you would like to have raised at a committee meeting please do not hesitate to contact me.

Also get involved with our facebook group and twitter where you can hear about BSCB events, competitions and other such things. We are currently redesigning our website and would love get more opinions on it via the survey posted on our facebook group.

Hope to meet lots of you at the spring meeting!

Clare Mills
University College London
Email:clare.mills.09@ucl.ac.uk

Honor Fell/Company of Biologists Travel Awards

Honor FellTravel Awards are sponsored by the Company of Biologists (the publishers of *The Journal of Cell Science* and *Development*) and they provide financial support for BSCB members at the beginning of their research careers to attend meetings. Applications are considered for any meeting relevant to cell biology. The amount of the award depends on the location of the meeting. Awards will be up to £300 for UK meetings (except for BSCB Spring Meeting for which the full registration and accommodation costs will be made), up to £400 for European meetings and up to £500 for meetings in the rest of the world.

To apply, complete the form below and send to Dr Ewald Hettema (e.hettema@sheffield.ac.uk; address on page 30). (A PDF of the form is available on the BSCB website. Applications must include:

- the completed and signed application form
- a copy of the abstract being presented
- a copy of the completed meeting registration form
- details of registration, travel and any other costs that will be claimed

The following rules usually apply (at the discretion of the Committee):

- Awards are normally made to those in the early stages of their careers (students and postdocs)
- Applicants must have been a member for at least a year (or be a PhD student in their first year of study).
- No applicant will receive more than one award per calendar year and three in toto.
- The applicant must be contributing a poster or a talk.
- No lab may receive more than £1000 per calendar year. Awards are discretionary and subject to available funds.
- Group leaders that have no grant money available may apply to attend the BSCB spring meeting
- If proof of payment for ALL costs claimed is available at the time of application, successful applicants will be awarded a grant in advance of the meeting.
- If proof of payment for ALL costs is not available at the time of application, successful applicants will be awarded a provisional grant and a cheque will be sent when BSCB have received the receipts.
- Incomplete applications will not be considered.

Application for Honor Fell/Company of Biologists Travel Award

Please complete, print out and send to Ewald Hettema at the address on page 30 together with supporting information

Full name

Work/lab address:

Email:

Age:

BSCB Memb. No:
I have been a member for years

Years of previous Honor Fell /COBTravel Awards:

Degree(s) (dates):

Present Position:

Supporting statement by Lab Head:
This applicant requires these funds and is worthy of support. I recognise that in the event of non-attendance at the meeting, the applicant must return the monies to the BSCB and I accept the responsibility to reimburse BSCB if the applicant does not return the funds.

My lab has not received more than £1000 in Honor Fell/ COB Travel Awards during this calendar year

Signature:

Name:

Meeting for which application is made:

Title:

Place:

Date:

Expenses claimed

Travel:

Accommodation:

Registration:

Have you submitted any other applications for financial support? **YES/NO** (delete as applicable)

If YES, please give details including, source, amounts and whether these monies are known to be forthcoming.

Applicant's Signature:

Name:

The British Society for Cell Biology

Statement of Financial Activities for the year to 31 December 2012

		2012		2011
	Unrestricted	Restricted	Total	Total
	£	£	£	£
Incoming Resources				
Incoming resources from generating funds:				
Voluntary income	35,000	30,000	65,000	65,000
Incoming resources from charitable activities:				
Meetings	11,608	–	11,608	2,790
Subscriptions	24,477	–	24,477	33,932
Investment income:				
Bank interest	1,611	–	1,611	389
Total incoming resources	72,696	30,000	102,696	102,111
Resources Expended				
Charitable Activities:				
Grants payable:				
CoB/Honor Fell travel awards	–	35,195	35,195	29,744
Other grants	7,448	174	7,622	2,585
Studentship	23,560	–	23,560	13,020
Costs of meetings	9,555	–	9,555	31,495
Website expenses	5,205	–	5,205	10,059
Newsletter costs	8,466	–	8,466	3,775
Membership fulfilment services	14,875	–	14,875	–
Governance costs	4,033		4,033	4,180
Total resources expended	73,142	35,369	108,511	94,858
Net movement in funds for the year before transfers	(446)	(5,369)	(5,815)	7,253
Transfers between funds	(3,728)	3,728		
Net movement in funds for the year	(4,174)	(1,641)	(5,815)	7,253
Funds brought forward at 1 January 2012	233,412	8,808	242,220	234,967
Funds carried forward at 31 December 2012	229,238	7,167	236,405	242,220

	2012	2012	2011
	£	£	£
Current assets:			
Debtors			
Prepayments and accrued income	19,197		347
Cash at bank and in hand			
National Savings Investment Account	72,481		72,065
HSBC Bank Accounts	147,639		172,418
Total current assets		239,317	244,830
Liabilities			
Creditors: amounts falling due in one year		2,912	2,610
Total assets less current liabilities		**236,405**	**242,220**
Funds			
Restricted funds		7,167	8,808
Unrestricted funds		229,238	233,412
Total funds		**236,405**	**242,220**

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The BSCB Ambassadors are the people to ask about sponsoring you for membership.

Anyone who wishes to volunteer to become a BSCB ambassador at any Institutes not represented in the list below please contact the BSCB.

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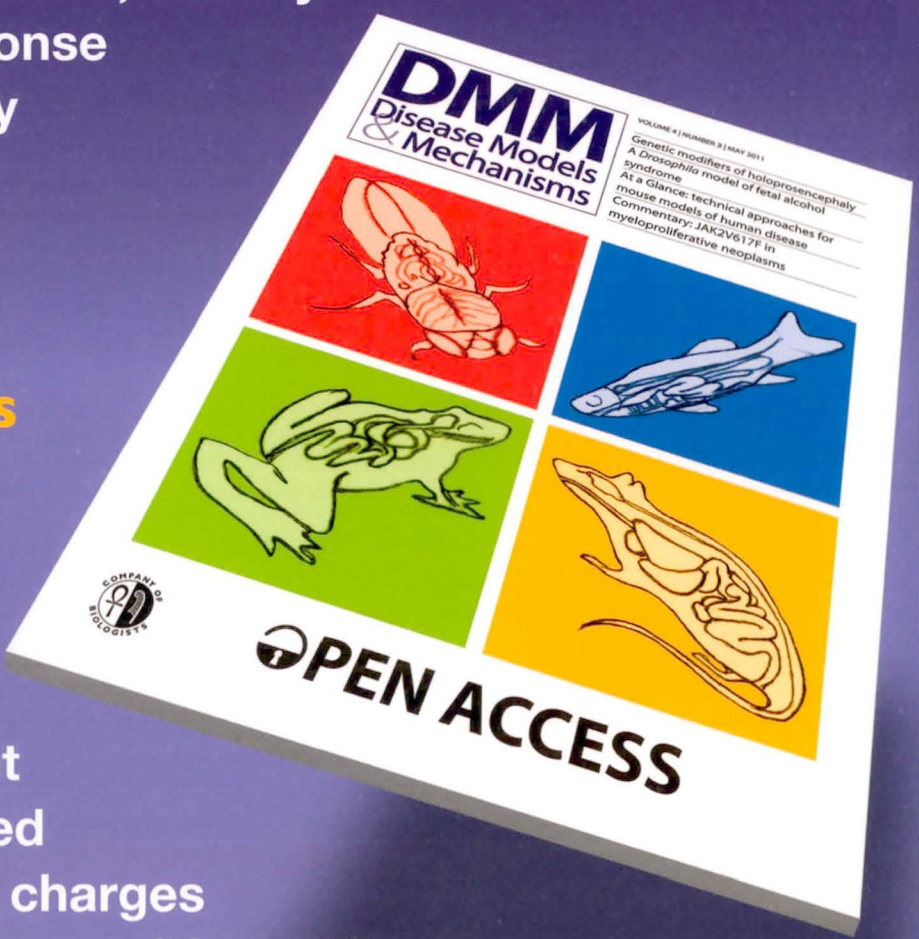

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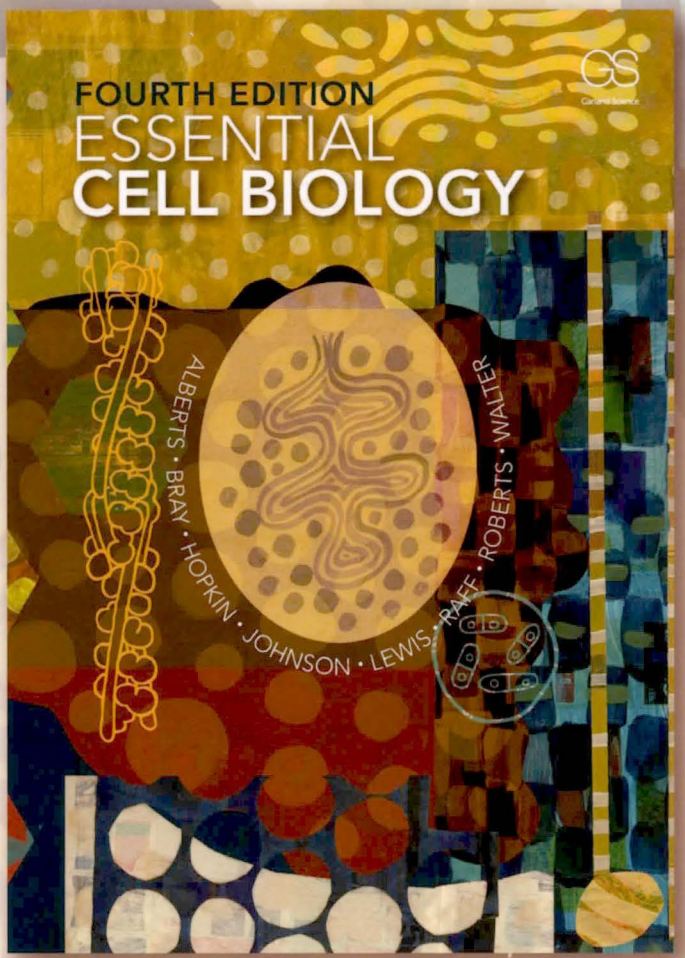

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