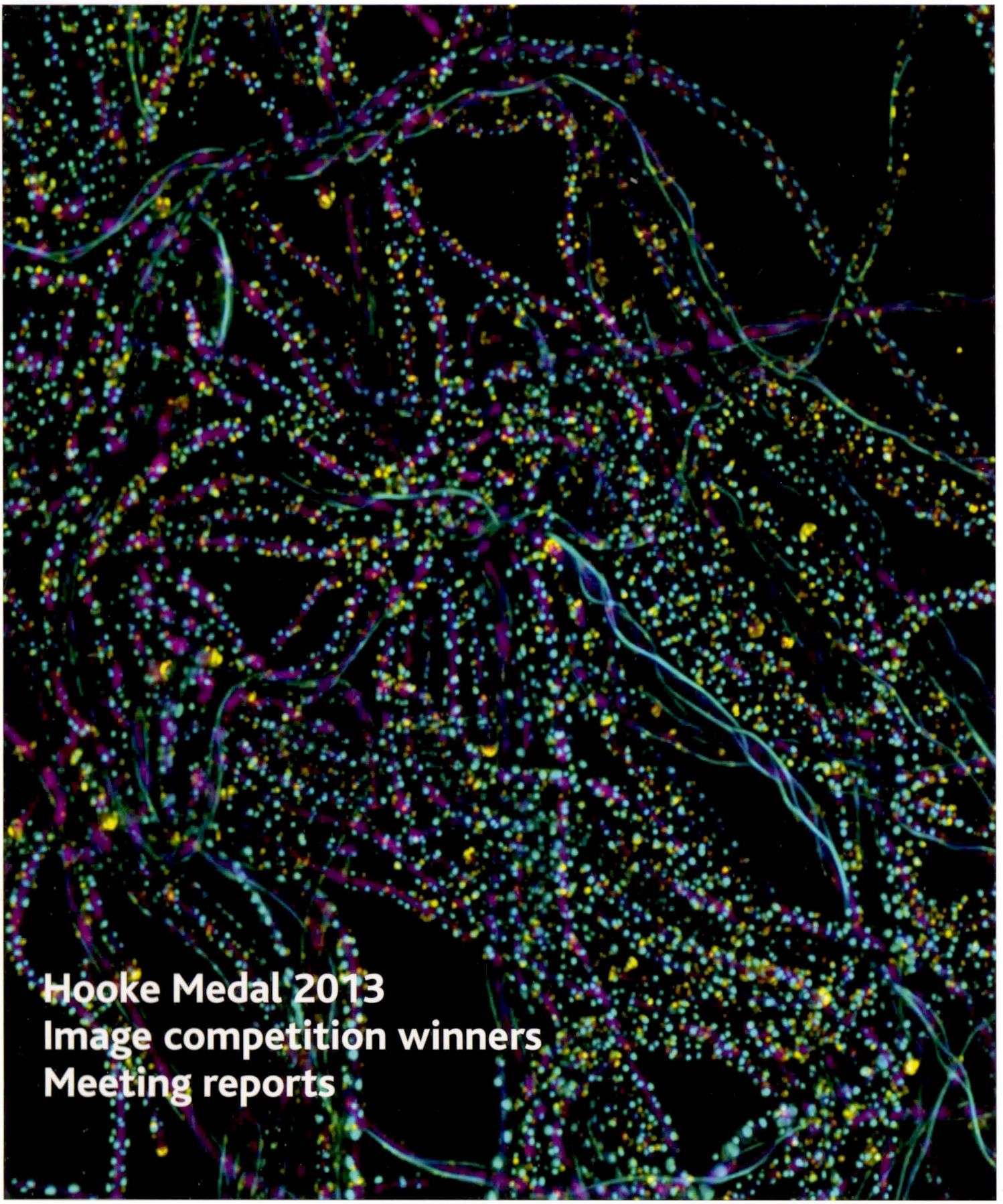
WINTER 2012

# BSCB Newsletter

BRITISH SOCIETY FOR CELL BIOLOGY



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WINTER 2012

# BSCB Newsletter

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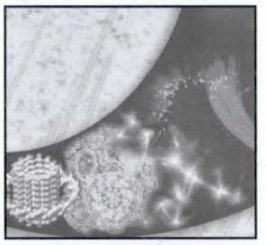


## Editorial

Welcome to the Winter 2012 issue of the BSCB newsletter. Hopefully many of you will have enjoyed the BSCB/BSDB/JSDB Joint Spring meeting this year, which took place at Warwick University. Next year the joint BSCB/BSDB Annual Spring meeting will have a new format – the aim of both committees is to provide a broader content that is more accessible to the cell and developmental biology communities. Please read about this inside and do register for the meeting and let the BSCB know what you think of the changes we have made.

I hope you enjoy reading this issue – as always there are a selection of meeting reports written by students and postdocs awarded Honor Fell/Company of Biologists travel awards. For those of you who have not applied for a travel award before, applications are considered for any meeting relevant to cell biology but you need to be presenting a poster or giving a talk to qualify for an award. The application form is on page 25 of this issue. The quality of writing of the reports is generally excellent and for those folk who weren't able to attend the meeting, you might well find the odd sneaky preview of a hot result or two!

This issue also details some important changes to the way the BSCB is collecting subscriptions. Please read about this in the News section. You should by now have been contacted by Portland Customer Services, who are contracted to maintain our membership database. I already have my shiny new membership card with my membership number on it (007), which is hugely helpful because I could never previously find that number when asked to sponsor a new BSCB member.

Could I please encourage students and postdoctoral members to enter the BSCB Science Writing Competition, 2013. I'm sure that many of you have a great science story in your head, and the prize is £300, so well worth a thousand words, I would say. This year the competition is being judged by Jenny Rohn, the founder and Chair of Science is Vital and the editor of LabLit.com. Sooo...get writing and have a great Christmas!

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

The cover image is the winning entry in the BSCB 2012 Image Competition. Sheng-Wen Chiu's image shows staining for the tubulin homologue Fts Z in the filamentous cells of the bacterium *Rhodobacter sphaeroides*. Sheng-Wen Chiu is from the Department of Biochemistry at the University of Oxford.

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

# News

## British Society for Cell Biology Hooke Medal Winner 2013

This years Hooke medal winner is Eric Miska from the Gurdon Institute, 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 scientists such as Ann Ridley, Matthew Freeman, Alex Gould and last years winner Holger Gerhardt.

Eric Miska has been an independent researcher since 2005. He and his team are investigating all aspects of gene regulation by regulatory RNA. Dr Miska played an important role in the initial understanding of the role of microRNAs (miRNAs) in *Caenorhabditis elegans* by knocking out all miRNAs and investigating the phenotypes of individual mutants as well as double and triple mutants. Recently he has increasingly focussed on the biogenesis and function of another class of small non-coding RNAs the so-called piRNAs, which are bound to the PIWI protein. Dr Miska has published a number of important papers dealing with aspects of regulatory RNA and his work has been at the forefront of this dynamic area of research.

Eric will be presented with his medal and will give the Hooke medal lecture at the BSCB/BSDB Spring meeting in March next year.

## BSCB/BSDB announce new format for Annual Spring Meetings

Organising the annual Spring Meeting is one of the most important functions of the BSCB and BSDB. Over the last few years, attendance at these meetings has been declining gradually. Our informal research suggests several reasons for this: competition from other meetings; dwindling resources available to fund attendance, and the meetings not always being directly relevant have all been prominent comments.

So, we're revamping the format of these meetings. The most noticeable change will be that meetings will not be 'themed' and individual sessions will not be badged as BSCB or BSDB – we will aim to cover the most exciting new discoveries in the areas of cell and developmental biology. We hope you will always want to attend the meeting, even if the sessions aren't tightly focused on your exact interests, as there will be no better way to stay informed of the most important advances. We've also made several other changes that we hope will make the meeting more attractive:

**Networking:** This is one of the most important aspects of any scientific meeting. A common criticism was that few senior UK scientists regularly attended the meeting, thus denying younger researchers the chance to interact with them. We will now be inviting top UK researchers to chair each session at the meeting, even though they won't be presenting a talk. This will ensure that many top UK scientists are at the meeting every year. For the 2013 meeting, Tim Hunt, Clare Isacke, David Owen, Roger Patient, Anne Ridley, Daniel St Johnston, Austin Smith, Jim Smith and Steve Wilson have all kindly agreed to act as session chairs.

**Talks:** Although anyone can apply to talk at the Spring meeting, in practice most session talks go to more senior scientists. It is vital that our next generation of scientists get experience of presenting their work at large international meetings. A Graduate Student Symposium, with a prize for the best presentation, will now be a prominent feature of every meeting. We hope that being selected to speak at this session will become a valued sign of recognition for graduate students, encouraging students to attend and to apply to present a talk.

**Funding:** Getting funding to attend the meetings can be difficult these days. Both the BSCB and BSDB run schemes for students and post-docs to apply for funds to attend meetings both in the UK and abroad (see our websites). We have now agreed to make these schemes more readily available to fund attendance at the annual spring meeting. We will also be more proactive and encourage our memberships to take full advantage of these awards to maximise attendance at the annual spring meeting.

**Location:** The Spring meeting will be held in Warwick until at least 2015. This will prompt some debate about the pros and cons of keeping the meeting in one place, and about Warwick as a venue. Booking this far in advance, however, will help keep costs down. Warwick may not be the most stimulating environment, but is relatively easy for everyone to get to and, once on site, people tend to stay there, fostering interactions in the local cafés and pubs.

We hope you will approve of these changes, and we would be delighted to hear your thoughts. Attending scientific meetings is one of the best ways of broadening ones knowledge and improving ones own science. Getting the most out of meetings is an important skill that young researchers need to learn. We hope the **BSCB/BSDB Spring meeting** will provide an excellent environment for all these things, and that attending will become an important priority for all UK-based cell and developmental biologists – no matter what stage they are in their careers.

We look forward to seeing you in Warwick!

*Elizabeth Robertson (Chair, BSDB)*
*Jordan Raff (Chair, BSCB)*

# Important changes for subscriptions

I have now completed my term as BSCB Treasurer, and would like to take this opportunity to thank everyone for their help and cooperation, and to draw your attention to recent changes with the BSCB financial arrangements.

First, we have a new Treasurer Prof Caroline Austin. Caroline and I have worked together over the last year to ensure a smooth transition, and by the time you read this, she will be in full control of the Society's finances. Please contact Caroline (caroline.austin@newcastle.ac.uk) if you need to discuss the Society's finances.

Second, by now you should have been contacted by Portland Customer Services (PCS), who are contracted to maintain our membership database and handle subscriptions. This is a well-established company, spun out from the Biochemical Society, and handles the database and subscriptions for many UK scientific societies. They offer a dedicated, professional service, and enhance our ability to collect and manage subscriptions. For example, we will now be able to offer credit card payment and issue membership cards.

We have now transferred the database, but as this was complex, collection of the 2012 subscriptions were delayed until August. From 2013 onwards, we will collect the annual subscription of members at the beginning of the year – a notification letter will be sent before Christmas. New members will be requested to pay as they join, and will pay the annual rate. However, members joining after October of the year, will have their membership deferred to the following year, in order to get full annual benefits. On-line application is available at http://services.portlandpress.com/bscb/join.htm

Generally, the transition has gone smoothly, but there are always a few teething problems, I apologise to anyone inconvenienced. PCS have been very helpful solving any problems. They can be contacted at BSCB@portland-services.com. The most important issue is to stay in contact, so please can ensure that your contact details are up-date, and notify PCS of any changes in contact details. If we loose contact, we will not be able to maintain your membership in the following year.

Finally, I would like to thank you all for your patience and cooperation during the time that I have been Treasurer. I must thank the current and former members of the executive committee, as well as the whole membership for their help and cooperation. I feel that during my term of office, we have been able to develop the Society's further support of British cell biologists, such as with the Summer Vacation Studentships and greater support for small meetings. The Society works for the support of its members and the executive committee is always open to new ideas and suggestions.

*Adrian J. Harwood*

# BSCB Science Writing Prize 2013

This autumn, the BSCB will again be running its Science Writing Competition for BSCB members. The Prize is open to all BSCB student and postdoc members – membership is a requirement for entry.

We particularly will be looking for articles that cover topics of key relevance in biomedical science. Articles need not be limited to research areas but you might like to try to communicate your own project in a clear, concise and entertaining way to a non-specialist audience.

Other topics should be relevant to cell biology in its broadest context; examples could include the impact of stem cell technology, a feature on an important disease condition, or a wider science policy issue such as government funding of basic versus translational science.

Articles should be limited to 1000 words but can include images where relevant (note that these will be reproduced in black and white only in the newsletter).

The winner will receive a prize of £300 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, 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.

The deadline for entries is the **1st February 2013**.

Send entries to Paul Andrews (pdandrews1@mac.com) as electronic files (preferably Word format with any illustrations or images sent separately as TIFF or JPG).

# School News

Summer and early autumn is a time for harvesting the fruits of earlier labours. Unlike the harvest of agricultural crops this year the number of pupils and students taking A-level biology and chemistry exams in England have shown a welcome increase.

This is heartening and hopefully reflects improved teaching and an improved image of science in the minds of young people. A pessimist might say that the increase indicates that young people are merely taking out an 'employment insurance' policy in these times of economic downturn. Time will tell.

One of the biggest falls in exam entrance numbers was for the subject of Critical Thinking. Commentators suggest a range of reasons for this, but the application of the concept and skill, both within the sciences and elsewhere, are very useful. Perhaps we should weave more Critical Thinking into how we present and teach science.

The data in the table to the right have been calculated from information from UCAS via the *Guardian* newspaper.

*David Archer*

**Increases in the number of candidates entered for A-level Biology and A-level Chemistry Examinations held in 2012 in England.**

| | Biology: | Chemistry |
|---|---|---|
| 2012 Male/female candidates: | 27,410 / 35,664 | 25,974 / 23,260 |
| 2011 Male/female candidates: | 26,949 / 35,099 | 25,329 / 22,753 |
| 2012 Male/female increase: | 461 / 565 | 645 / 507 |
| Total increase in 2012 | 1033 | 1152 |

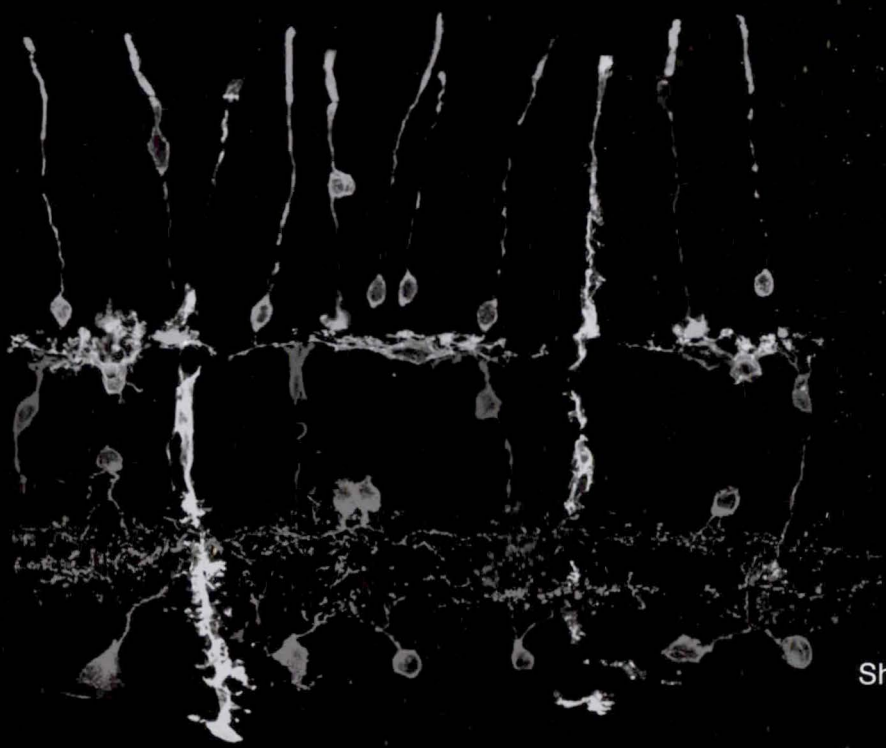
BSCB BSDB

# British Society for Developmental Biology
# British Society for Cell Biology

# Joint Spring Meeting 2013

## 17-20 March 2013
## University of Warwick UK

Dave Adams
Kathryn Anderson
Andreas Bergmann
Anna Bigas
Mario de Bono
Sarah Bray
Cathrin Brisken
Juan Burrone
Guillaume Charras
Gaudenz Danuser
Jyotsna Dhawan
Maria Dominguez
Freek van Eeden
Tariq Enver
Jenny Gallop
Darren Gilmour
Christine Holt
Martin Howard
Ludger Johannes
Gerd Jürgens
Tarun Kapoor
Robb Krumlauf
Patrick Lemaire



Pierre-François Lenne
Gero Miesenböck
Danesh Moazed
Kate Nobes
Duojia Pan
Liz Patton
Marysia Placzek
Graça Raposo
Jody Rosenblatt
Jenny Ross
Ben Simons
Helen Skaer
Liz Smythe
Claudio Stern
Charles Streuli
Elly Tanaka
Barry Thompson
Tao Uttamapinant
Julie Welburn
Mike White
Shigenobu Yonemura
Jennifer Zallen

Plenary lectures by

## Olivier Pourquie and David Drubin

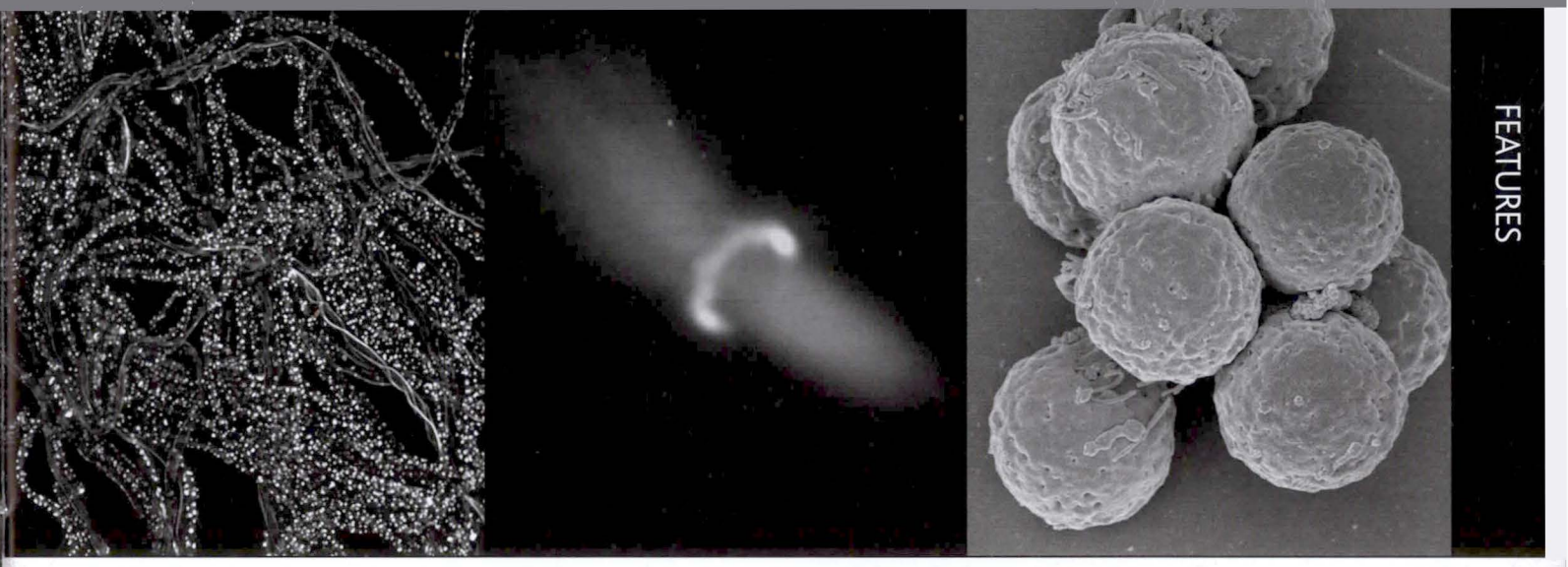
*Topics include: Epithelia and Mechanosensing, Cell Cycle and Death, Motors and Morphogenesis, Trafficking, Gene Regulation, Cancer Models, Stem Cells and Regeneration, Neurons and the Nervous System*

*Scientific organisers: Keith Brennan, James Briscoe, Andrew McAinsh, Stephen Royle, Jean-Paul Vincent, Fiona Wardle*

Image by Brzezinski et al. *Development* 138(16): 3519

http://www.bscb-bsdb-meetings.co.uk/

THE COMPANY OF Biologists





# BSCB Image Competition Winners 2012

We are please to announce the winners of this year's BSCB Image Competition.

In first place with a stunning image of writhing interlaced filamentous bacteria is Sheng-Wen Chui from the Department of Biochemistry at the University of Oxford. Congratulations go to Sheng-Wen for this superb image – both technically accomplished and aesthetically pleasing.

In second place, with a simple but visually striking image of a ring of Citron Kinase surrounding the microtubules of an isolated HeLa midbody is Zuni Bassi from the Department of Pathology at the University of Cambridge.

In third place is a scanning electron microscope image of a group of DT-40 cells, pseudocoloured to resemble scoops of ice cream!

Once again we are extremely pleased that we have been able to select images of such high standard to grace to the cover of the forthcoming newsletters and would like to thank the winners as well as all the entrants for taking the time and effort to produce their cell biology images. Remember to keep taking great images and keep all those beautiful images in a metaphorical shoebox so you can submit them in next year's competition.

*Paul Andrews*

**First Prize (above left):** Sheng-Wen Chiu, Department of Biochemistry, University of Oxford

In filamentous cells of the bacterium *Rhodobacter sphaeroides*, the tubulin homolog FtsZ (tagged with CFP) forms dot-like and spiral structures in two distinct populations. The FtsZ cytoskeleton affects the localization of the membrane chemosensory protein clusters (YFP). Cell bodies are shown in magenta.

**Second Prize (above centre):** Zuni Irma Bassi, Department of Pathology, University of Cambridge

The image shows a midbody purified from HeLa cells synchronized in cytokinesis that has been fixed and immuno-stained to detect tubulin and Citron kinase.

**Third Prize (above right):** Dr Daniel Booth, Wellcome Trust Centre for Cell Biology, University of Edinburgh

A scanning electron micrograph (SEM) of DT-40 cells adhered to glass and fixed with aldehydes. The cells were pseudo coloured to make them resemble scoops of ice-cream.

# From Palestine to London

Last summer I had the chance of a lifetime. I had the opportunity to work in the laboratory of Professor Buzz Baum at the MRC Laboratory for Molecular Cell Biology, University College London for three months. This was made possible with the joint support of an EMBO summer research fellowship, a Daniel Turnberg travel fellowship, and the British Society of Cell Biology. It was an amazing opportunity for a Palestinian student like me to be part of this scientific institute. I grew as a scientist during my time in London, and in just three months learned more than I had in four years of university.

I met Buzz and his colleagues Karim Labib, Nesrin Ozoren, Petr Svoboda and Elena Levashina when this group of EMBO young investigators came to Palestine for a student conference in 2011 on "Frontiers of Molecular Biology" sponsored by the EMBO YIP programme and Birzeit University. It was a wonderful event that was attended by more than 100 Palestinian students and academics from universities across Palestine. There were talks by some of the best Palestinian labs, including my supervisor Dr Stiban, and the EMBO YIPs gave general overviews of their research area and research talks. At the end of the meeting, I learned that the EMBO YIP programme had decided to initiate a fellowship to support the travel of 1-2 Palestinian students to join an EMBO YIP lab in Europe for several months in the summer. For students like me this seemed the chance of a lifetime – a stepping-stone to a potential PhD in Europe. (It is not possible at the moment to get a PhD from a Palestinian University.) I applied and was thrilled to learn that I would be able to join the Baum lab.

This was my first trip to the UK and it was beneficial not only scientifically, but also socially. In Buzz's lab at the MRC-LMCB, I found people working there from different backgrounds and different cultures; they were all very welcoming and helpful. The work atmosphere was very friendly, with picnics and boat trips, and two other summer students, Sophia and Jo, who introduced me to the British culture and gave me tours in London. Through them, I got to know about the education system in England. I was soon used to living in London, and enjoyed every moment of my daily life there.

The Baum lab studies mitotic cell rounding, with each lab member looking at a different aspect of this process using different model systems, such as *Drosophila melanogaster* and human cancer cell lines. My project was to work on the dynamics of focal adhesions during mitosis. This previously unexamined facet of cellular rounding had the potential to help us to understand the process as a whole. I had to learn how to handle cancer cells (HeLa cells) and immortalized cells (RPE-1 cells) in culture, and how to use the confocal microscope, which became a fundamental tool in my research. I used immuno-cytochemistry to study focal adhesions during different stages of mitosis in both cell lines, looking at changes in levels of a variety of focal adhesion components such as Paxillin and Vinculin; this revealed that focal adhesions disassemble one by one as cells enter mitosis. I noticed that the focal adhesion adaptor protein, Paxillin, disappears first from focal adhesions. I also discovered that neighboring focal adhesions are not removed simultaneously, ruling out regulation by a simple diffusible biochemical signal.

I also studied cells over-expressing activated Rap-1, a GTPase that is usually inactivated upon entry into mitosis. When constitutively active, it has been shown to keep cells flat during mitosis. In my experiment, I found that cells over-expressing activated Rap-1 maintained their focal adhesions throughout mitosis. Although these adhesions did not disappear they were still remodeled.

I would like to thank everyone at the MRC-LMCB for this wonderful experience. Special thanks go to Buzz, my day-to-day supervisor Oscar Lancaster, and the lab members who provided such a friendly and stimulating work environment.

I am very grateful to the BSCB, the Daniel Turnberg foundation and EMBO for my fellowship. I have been exposed to first-hand experience of research in a world-class lab, which has helped me figure out my orientation in this amazing field of cell biology and persuaded me to continue my studies in Paris.

*Majdoulin Abughali, Department of Biology and Biochemistry, Birzeit University, Palestine*

# Book Reviews

## The Molecules of Life: Physical and Chemical Properties

**KURIYAN, KONFORTI AND WEMMER.**

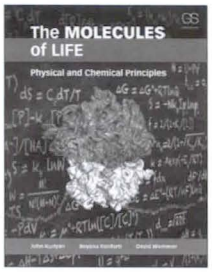
This is an excellent book that does exactly what it says on the front cover. It encompasses the macromolecules found in biological systems from structural, biophysical and biochemical standpoints. But it does not extend into the biological systems themselves. The authors state in their Preface "We have written this textbook with an undergraduate audience in mind, particularly those who have chosen biology or the health sciences as their principal area of study".

The book is indeed written in what is now the standard format of a student textbook: very clear presentation with good graphics; special points highlighted in shaded boxes; with problems and suggestions for further reading at the end of each chapter. Yet I fear the book is pitched at too high a level for undergraduate courses in the biological sciences, at least in the UK. The authors approach their subject in a properly rigorous and disciplined manner but unfortunately this necessitates a higher level of mathematics and physical chemistry than is possessed by most UK undergraduates in the biological sciences.

Nevertheless, this book ought to be present in the libraries of all universities running courses in any of the biological or health sciences, as a source of reference for students interested in furthering their understanding of biological macromolecules and it would make a superb textbook for an advanced (post graduate) course in biomolecular science. It ought also to be present in many research laboratories, as a readily accessible source of background information and scientific principles.

In general, the text is accurate and correct but in a volume of 1000 pages is bound to contain some errors. One of the very few I noted was that the authors unfortunately perpetuate the myth of the oxocarbenium ion intermediate in the catalytic pathway of lysozyme, even though it is now known that lysozyme proceeds via a covalent intermediate through a carboxylate in the active site, the carboxylate that had previously been considered to be involved solely in acid/base catalysis.

*Professor Steve Halford FRS*
*School of Biochemistry, University of Bristol.*




**The Molecules of Life: Physical and Chemical Properties**
Kuriyan, Konforti and Wemmer

Garland Science

ISBN: 978-08153-4188-8

Publication July 2012

1032 pages;
900 illustrations

## Principles of Cell Biology

**GEORGE PLOPPER**

When a new text book about cell biology arrives one is immediately curious. One wonders where the new book will fit in; what new ideas will it bring, will it be friendly in approach? Will it be appropriately presented and priced and come with any 'cool' extras and above all will it be an asset to the subject?

'Principles of Cell Biology' (PoCB) is a single author volume written by a teacher who really understands how to connect with young students at the start of their course or module in cell biology. The text is written in a student-friendly style and the art work too presents information in a clear concise way.

At the beginning of the book there is a Brief Table of Contents followed by a more detailed list. Also at the beginning there is some sound advice to students on how to 'Study Smart', including the great idea of adopting a regular 'self-debriefing strategy'. Each chapter has numerous tinted boxes covering pedagogical points. At the beginning of most chapter sub-sections a tinted box covers 'Key Concepts' and at the end of each chapter there is a Chapter Summary followed by 'Concept Check Answers'. A nice point about the 'answers' is that they 'discuss' an answer rather than just state a specific fact; it is rather like a mini-tutorial. Other tinted boxes are labelled 'TIP', 'FAQ', 'Analogy' and occasionally other information. Like many teachers the author uses analogies quite a lot but I am pleased to see that in one 'TIP' box he warns about anthropomorphism and analogies. My own experience is that some students like analogies but some do not; and some remember the story but not the science!

Most chapter headings and sub-headings are well set out and expressed in what has been termed 'Massachusetts Declarative' style by Sydney Brenner. The first four chapters describe what a cell is and the molecules within it, sugars, proteins, nucleic acids and lipids. Ten chapters make up the rest of the book with each chapter being devoted to a principle which the author then supports.

The review copy I received was from the first printing and I found that the Principles referred to in the title were rather tucked away in the Big Picture overview at the beginning of each of the appropriate ten chapters i.e. chapters 5-14. I understand that publishers are reviewing whether the Principles will be given greater emphasis and status in some way in future printings. I like the idea of Principles and although one could debate for hours what a principle is, and that 'ten' is an arbitrary number, for the purposes of this text I think those stated by Plopper are fine.

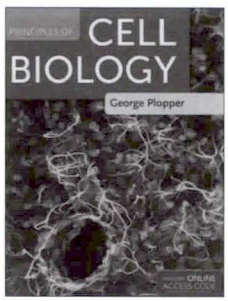
The book is now into a second printing and the one or two typographic errors will have been corrected. I was pleased, but surprised, to see the term adrenaline (as preferred in the UK) used instead of epinephrine which is the preferred term in the USA. This may be attributable to Plopper's student friendly approach. After all, students are much more familiar with an 'adrenaline rush' than and an 'epinephrine rush'.

Much of the artwork is refreshingly different and very clear. Each graphic has been created or selected for its teaching and learning potential. I started making a list of the graphics I especially liked but the list grew too long for this review.

Additional items: For students there is a free online access code to a companion website for 365 days from first registration. For lecturers (instructors) a PowerPoint Image bank and PowerPoint Lecture Outline are available. At the end of the book there is no list of references or links to journal articles or further reading, but there is good glossary clearly printed in black and one colour, another good and novel idea. The glossary is followed by an index.

To conclude, I think the student friendly, 'teacher at your side' style Plopper has adopted, and the excellent artwork, will find favour with students on introductory courses in cell biology. If the student stops at this stage, he or she will have a good grounding in the subject. If they continue their studies in this field they will easily migrate to more advanced texts. This 'new book on the bench' is certainly welcome and will fit in well. I think it has a good future and is certainly a welcome addition.

*David Archer*




**Principles of Cell Biology**
George Plopper

Jones and Bartlett Learning

ISBN: 978-14496-3751-4

800 pages.

£38-99

**For BSCB members discount, please see the BSCB website**

# Molecular Cell Biology, 7th Edn

**LODISH H. ET. AL.**

This well respected and established text and additional facilities has many characteristics of a Toyota car and a Microsoft computer programme.

Toyota cars are known for their reliability and so is Molecular Cell Biology (Mol Cell Bio) which is both dependable and authoritative. A strategy of 'Kaizen' or 'constant improvement' is employed by Toyota and this certainly appears to be the case with the writers and publishers of Mol Cell Bio.

Molecular Cell Biology also associates in my mind with Microsoft programmes. As many readers will know there are many, many facilities available in Microsoft programmes that are not apparent at entry level operating. So it is with 'Lodish', even the 19 pages of the affirmatively written comprehensive contents list could provide a pretty good revision aid. A quick scan of the text does not reveal all the many 'added value' items available and thankfully offered without a time limit on internet availability. To me this true mark of writers and a publisher who wish their product to become part of the readers own lifetime library and not just a book for a college course.

In the 6th edition of Mol Cell Bio media connections such as podcasts, videos and three types of 'Animations' were listed on the front and back end papers of the book. I liked this and I missed their presence in the 7th edition. I expect there is a good reason for the change, but its absence provides my only really negative criticism of this excellent text book.

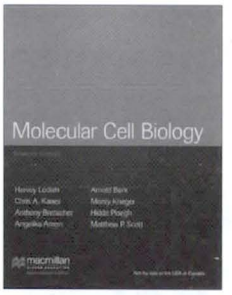
So what has 'Kaizen' done for Lodish 7th edition? Many of the changes are relatively small but taken together contribute to a greatly improved text for students. Improvements have been made through re-positioning of selected material within sections, simplifying approaches and language, and in some cases by re-writing sections and chapters and even eliminating some text. Every chapter and every graphic has been inspected and changed if required in order to give the student an improved learning provision.

In chapter 1, the evolutionary process is given more emphasis and two complex topics, cell signalling and the eukaryotic cell cycle, have been improved and clarified. Chapters 15 (Signal Transduction...) and Chapter 16 (Signalling Pathways...) have been rearranged to provide a more straightforward pedagogical approach. Chapter 19 on the Eukaryotic Cell Cycle has similarly been overhauled and updated. 'Culturing, Visualizing and Perturbing Cells' (Chapter 9) has been rewritten to include up-to-date methods such as FRAP and FRET and Chapter 21 now includes some coverage of induced pluripotent stem cells (iPS) cells.

With the amount of biological data rising exponentially we are in danger of being suffocated by it. As readers will know data is not an end in itself and therefore it is pleasing to see that the number of 'Analyse the Data' problems in MCB has been increased. The number of 'New Discoveries and Methodologies' has been raised by 48 and the number of new items of 'Medical Relevance' by 16.

As with cars, when a new model arrives some features are dropped and others added. In the 7th edition of Mol Cell Bio the end of section 'Key Concepts', 'Key Term', 'Reviewing the Concepts' and 'Analysing the Data' headings and some text now reside in a tinted boxes. Chapter sub-headings also have a tinted background compared with the bold colours of the 6th edition. The subheadings in the end of chapter reference section were printed in colour (6th edition) and now only in black, so there is less contrast. But these are 'gain some, lose some' changes and do not detract from a beautiful, well rounded and well produced excellent higher education text and reference book. And a good bonus; the free associated media links work in the UK. The two Podcasts I listened to were well done.

*David Archer*




**Molecular Cell Biology 7th edition**
Lodish H. et al.

Macmillan Higher Education

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1154 main Pages.

£59-99.

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# Lewin's Essential Genes 3rd Edn

**KREBS, JOCELYN E, GOLDSTEIN ES, KILPATRICK ST**

A friend, who is not a biologist, was visiting and saw a copy of 'Lewin's Essential Genes' on my desk. "Oh", she said, "so there are non-essential genes too". I tried to explain, or rather bluff my way through, what the book title really meant!

After she left I compared 'Lewin's Essential Genes' with 'Lewin's Genes X'. I concluded that 'Essential genes' was rather more of an updated and student-orientated version of 'Genes X', more like a Genes 10.5+, than a book about the fundamentals of cell and molecular gene biology. Indeed, on the page in 'Essential Genes' carrying the credits, is stated 'Essential Genes'. Condensed edition of: 'Genes X', Benjamin Lewin. C2011.

So what does 'condensed' mean? 'Essential Genes' has 847 pages with 802 pages of text and diagrams and 45 pages of glossary, answers to questions and index. 'Genes X' has 930 pages with 880 of text and diagrams and 50 pages of glossary and index. What else has been condensed? As far as I can see, most of the text is the same as it is in 'Genes X' but there are some small changes. Further condensing has been made by only listing Section Headings in the Chapter Outlines at the beginning of each Chapter. In 'Genes X', the Chapter Outline at the start of the Chapter has both Section Headings AND Key Concepts, and the Key Concepts are repeated at the start of each Section. In pedagogical terms I think this 'signposting' is excellent. The full listing at the beginning of the chapter is a good planning and revision aid. Repeating the relevant Key Concepts at the start of each section gives direction and focus to students' reading.

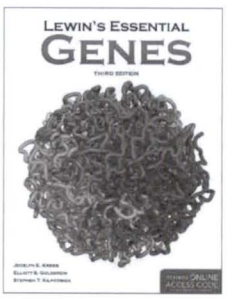
In 'Essential Genes,' Key Concepts appear only at the end of the Section along with a box headed 'Concept and Reasoning Check'. The later is a good addition, but to my mind having Key Concepts only at the end is like telling visitors they can have the Guidebook when they leave the building or event.

Welcome new additions to 'Essential Genes' include the printing of definitions in sidebars alongside the text, with the definitions also collected into a Glossary at the back of the volume. The number of References at the chapter end has been heavily pruned and is now headed 'Further Reading'. Additionally there is a whole list of 'Chapter Questions' [with answers at the end of the book] and a box labelled 'Key Terms'. For students there is also a 'Companion Website' available, but this is time limited and only accessible for 365 days from registration. Not too good for students in their second and third and possibly fourth year of a UK degree, or if they have to take a re-sit.

An 'Instructor's Media CD' is available for Lecturers. This contains an Image Bank, Test Bank and Lecture Outlines.

Final recommendation: A good book, especially for student's but with the pedagogical reservations mentioned.

*David Archer*




**Lewin's Essential Genes 3rd edition**
Krebs, Jocelyn E, Goldstein ES., Kilpatrick ST. '.

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802 main pages.

£39-99. **(BSCB members can buy at a discount, please see BSCB website).**

# Meeting Reports

## American Association for Cancer Research (AACR) Annual Meeting – Accelerating Science: Concept to Clinic

31 March – 4 April 2012. McCormick Place West, Chicago, USA.

**This year's AACR annual meeting was organised by Judy E. Garber (Dana-Farber Cancer Institute, AACR President), Benjamin G. Neel (MaRS Centre, Annual Meeting Program Committee Chairperson), and the Annual Meeting Program and Education Committees. The conference focussed on the biology of cancer formation and how to bring this information forward to the clinic.**

AACR is an internationally-renowned conference with over 16,000 attendees each year. The first annual meeting was held in 1907 which was soon after Dr James Ewing discovered Ewing's Sarcoma. Since then a huge amount of progress has been made in the cancer-research field and AACR has been consistent in bringing together the most pertinent cancer-researchers from basic, translational, and clinical fields.

This year's AACR annual meeting featured daily plenary sessions, major symposia, minisymposia, forums, educational sessions, methods workshops, and poster sessions.

The plenary sessions included the top researchers in the cancer field. The topics included tumour heterogeneity, immune therapies, pathway targeted therapeutics, and bringing concepts to the clinic. I found these sessions particularly interesting because each speaker presented their work as an overview from decades ago until now. As a student, it is sometimes difficult to see how your work fits into a bigger picture and it was great to see how much each researcher has achieved by staying in one field for their entire career.

There were three plenary talks in particular that I enjoyed. The first was by Rakesh Jain (Massachusettes General Hospital and Harvard Medical School, Boston, MA) who presented work on normalizing the tumour microenvironment to enhance therapeutic outcome. This was the first time I had encountered this type of research and found it to be controversial yet innovative. Jain's work has shown that blood, lymphatic vessels, and the matrix associated with the tumour creates an abnormal environment e.g. hypoxia and high interstitial pressure. Jain showed that anti-angiogenic therapeutics created a "window of normalization" where chemotherapeutics were more effective. Equally, his group showed that cancer cells "co-opt" the stromal cells into producing pro- and anti-angiogenic cytokines and extra-cellular matrix. Jain is now targeting these cells as a novel cancer therapy.

James Allison (Memorial Sloan-Kettering Cancer Center, New York, NY) spoke in the opening plenary session about mobilizing the immune system to treat cancer. I have always been interested in this type of research because the therapies have relatively few side effects, and it utilises the body's own immune system. Allison's group focuses on the T cell antigen receptor complex and aim to use antibodies to enhance anti-tumour T cell responses. One such clinical trial showed a varied response to antibody treatment. Some patients did not seem to respond to the treatment at all, while others had few side effects, and they were disease free until the data recording ended several years later. This highlights the need to understand heterogeneity among cancers in order to determine whether a patient will respond positively to this type of therapy or should have more traditional treatments. I have great hopes for this research and I will continue to follow this work closely.

Richard Gilbertson (St. Jude Children's Research Hospital, Memphis, TN) focused on the problem of heterogeneity by using an innovative animal model. Gilbertson's lab focuses on brain tumours and why some patients respond well to treatments while others do not respond at all. One of the difficulties with drug design is that from a library of thousands of drugs, only 2 or 3 will ever make it through clinical trials. One solution to this is to transplant part of a patient's tumour into a mouse, and treat it with a single drug. However, this is time consuming and expensive. Therefore, Gilbertson's lab is developing an innovative animal model for mass screening of chemotherapeutics using zebrafish. Zebrafish are comparatively cheap and can lay hundreds of eggs. Gilbertson showed that it is possible to grow human tumours in these zebrafish and that the tumour biology remains remarkably similar. In fact, even when the transplanted tumours metastasise in zebrafish they exhibit similar gene expression patterns as they do when this occurs in humans. I still have many questions about his work and I'm looking forward to reading about it when this is published.

Each day there were two poster sessions lasting 4 hours. Since there were around 7000 posters I had to select only a few posters and I focused on those close to my project. I enjoy poster sessions in general because it is easy to have an exchange of ideas in a relaxed environment. I found several groups working on brain tumours that

suggested changes to my project and have since been successful. Since there were undergraduate and 1st year PhD students presenting posters I was also able to suggest improvements or discuss their projects.

I presented my work as a poster during an afternoon session. I had around 30 people come to discuss my work ranging from students to experts. Most of the academics were helpful but some came to disagree with my hypothesis, which was useful for when I have my viva.

Overall, the conference was well organised and a great experience. The progress that has been made in oncology is striking, and by the end of the conference I felt that the understanding of tumour biology was being effectively translated into the clinic. However, there is still a great deal we need to discover about cancer biology and how to effectively treat it. I hope that the research field continues to focus on patients, and develops treatments with fewer side effects and increased efficacy.

*Chris Tan, University of Nottingham*

# BSCB/BSDB/JSDB Joint Spring Meeting

15–18 April 2012, University of Warwick.

**At the BSCB/BSDB 2012 Spring Meeting, which was this year held at the University of Warwick, the societies were joined by the Japanese Society of Developmental Biologists for the first time. The meeting took place over 4 days (15th-18th April) and sessions were normally split into two, with the BSDB and BSCB sessions running in parallel. Delegates joined together for the plenary and medal winning lectures and the graduate symposium.**

At the beginning of the meeting, Denis Duboule (Federal Institute of Technology, Switzerland) gave the BSDB Plenary Lecture on the 'Vertebrate Hox clock'. He described how during development Hox genes are activated following a cis time sequence, so that they are triggered in a particular order, which is crucial for development to progress. This talk gave a great insight into how development has evolved, and was easy to understand even for non-developmental biologists.

The BSCB Garland Plenary Lecture was given by JR McIntosh (University of Colorado, USA) entitled 'Microtubule tips as mechano-chemical devices'. His work focused on how microtubules can exert forces in cells, as this has been proven to occur in vitro through polarisation or depolarisation, but it is unclear how this process would occur in vivo. Utilising time lapse microscopy and computer models, we were shown the protofilament model, which puts forward the theory that filaments undergo a 'forced walk'. The evidence that this process is tightly regulated was very convincing and helped us understand more about how forces can act in cells.

All of the BSCB lectures were extremely interesting but one of the notable lectures was the talk 'A CEP63-CEP152 protein complex promotes centrosome duplication and determines brain size' by Fanni Gergely (Cancer Research UK Cambridge Research Institute, University of Cambridge). She explained how the CEP63-CEP152 protein complex maintains normal chromosome number and brain size. Mutations in this complex are thought to cause conditions such as primary recessive microcephaly (MCPH).

The BSDB talks also attracted a huge interest. One of the best presentations was Anna Philpott`s (University of Cambridge) talk about how neuronal progenitors decide between maintaining cell division or going through differentiation. She proposed that Neurogenin2 plays a key role in sensing cdk levels through phosphorylation which is transcribed into changes in the expression of genes important for regulating progenitor maintenance and neuronal differentiation.

Throughout the four days 185 posters were on display from Universities across the globe. Poster sessions took place over two sessions, late evening on Monday and Tuesday lunch. We all presented a poster, which showed data from our PhDs so far. It was an excellent opportunity to explain our work, discuss it with some very intelligent and thought provoking scientists and to do some valuable networking. These sessions also further demonstrated the wide variety of exciting and high quality research undertaken by conference attendees.

Graduates were also given the chance to present their work at the Graduate Symposium, chaired by Denis Duboule. Three talks were given and covered both cell and developmental biology.

There were two lunchtime sessions that were very interesting and well attended. The Monday lunch saw a panel of 7 respected scientists giving their Do's and Don'ts of a career in science. The session certainly got people talking and provided some food for thought for the future. Tuesday's session was a little more technical with a talk on 'Improving image resolution' from one of our sponsors Huygens Software.

However, the conference was not all work as the annual quiz took place during the student and post-doc social on the Sunday evening and the conference dinner was late on Tuesday evening. These turned out to be interesting social events, with some wonderful food and yet another opportunity to meet new people and discuss science. The conference meal was also a prime opportunity to award the winners of the BSCB and BSDB poster awards. Congratulations to all the following winners:

At the end of the second day, we were presented by the receiver of

this year's Hooke Medal: Holger Gerhardt (London Research Institute – Cancer Research UK). The Hooke Medal is awarded every year to an outstanding cell biologist who is in the early stage of his/her career as a group leader. Holger Gerhardt is currently looking at the role of VEGF/VEGFR and DII4/Notch signalling in the process of angiogenic branching. He presented exciting videos of how dynamic the endothelial cell movements are during zebrafish development and how the capillary branching is directed by this process.

On the third day, two medals were awarded. The first was the Beddington Medal, one of the highest honours for a young researcher and is awarded for the best PhD thesis in developmental biology. The recipient, Boyan Bonev (University of Manchester) well deserved this award for his doctoral studies which dissected the role of brain specific non-coding RNA in the determination of the cell-fate decision of neuronal progenitors.

The second award was the Waddington medal. This honour is granted to a person who has dedicated his/her life to developmental biology and has an outstanding contribution to the present knowledge. The receiver was kept secret until the last minute and then was slowly revealed by photos from his childhood to adulthood. The recipient, Alfonso Martinez Arias (University of Cambridge) presented his exciting life/research started with growing up in and then breaking out from Spain. He moved to Chicago and then settled down in Cambridge. One of his greatest achievements was to reveal how Wnt and Notch signalling cooperate during *Drosophila* development.

We all enjoyed the conference very much and would like to thank the organisers Kim Dale and Malcolm Logan from BSDB, Tomoyuki Tanaka and Helfrid Hochegger from BSCB and Naoto Ueno and Atsuko Sehara-Fujisawa from JSDB.

*Kate Brown (University of East Anglia), Louise Brown (University of Northumbria) and Petra Popovics (University of St. Andrews)*

### BSCB/BSDB/JSDB Joint Spring Meeting Prizewinners

**BSCB 1st Prize: BSCB Young cell Biologist of the Year**
L. Cheeseman, University of Liverpool
*Rapid, induced removal of TACC3/ch-TOG/clathrin from metaphase spindles defines the roles for microtubule crosslinkers in spindle assembly and function.*
He wins a cash prize of £350 and an all expenses paid trip to the American Society for Cell Biology annual meeting, which will be held in San Francisco in December. His report on the meeting will be published in the BSCB Newsletter.

**BSCB 2nd Prize:** £350 cash and a biochemical goodie bag
K. Tuladhar, University of Oxford.
*LIM-only domain (LMO) proteins in developmental haematopoiesis.*

**BSCB 3rd Prizes:** £115 cash
D. McIntosh, University of Dundee. *Replication factory in normal and cancer cells.*
N. Al-Jomah, University of Leicester. *Pds5 is required for cohesion removal from chromosomes at mitosis.*
J. Beira, National Institute for Medical Research. *Characterisation of apoptosis pathways responsible for the maintenance of tissue homeostasis.*

**BSDB 1st Prize**
S J Fleenor, University of Oxford.
*Characterising the role of a regulator of G protein signalling in cranial sensory ganglia formation.*

**BSDB 2nd Prize**
R Laranjeiro, University College London.
*A new link between the zebrafish circadian clock and cell cycle timing.*

**BSDB 3rd Prize**
T Pettini, University of Manchester.
*Transvection of a novel long non-coding RNA mediates Hox gene transcription in Drosophila.*

# Keystone Symposia: The Role of Inflammation during Carcinogenesis

20–25 May 2012, Dublin, Ireland

{ Keystone meetings often draw up visions of beautiful mountain retreats where delegates spend their spare time discussing science whilst testing their abilities on the slopes. So you can imagine that I was initially disappointed to learn that this would be Keystone Symposias' inaugural meeting in Dublin, Ireland, just a short budget flight away from Bristol. However, I was wrong to be disappointed. }

The meeting was not only fantastic scientifically, but the organisers, Jeffrey Pollard (Albert Einstein College of Medicine, USA) and Lawrence Egan (National University of Ireland, Ireland), also managed to secure us unbelievable hot and sunny weather. Who needs skiing when you've got the sun?!

The meeting was held at the Royal Dublin Society conference

centre. The grand Concert Hall was used for talks and a large hall across the courtyard for the evening drinks, poster sessions and entertainment. Ruslan Medzhitov (Yale University School of Medicine, USA) kicked off proceedings with an excellent Keynote address, with probably my favourite talk title over the whole meeting: 'New Adventures of an Old Flame'. His overview of the field described how inflammation is the hosts' physiological response to stress, either from tissue damage, infections or tissue stress (loss of homeostasis), which can have pathological consequences if not adequately resolved. During inflammation, many accessory cells are activated and recruited to the site of injury, where they are known to release complex mediators that act as profound modulators of the host microenvironment. We now know that every cancer is chronically inflamed, but rather than mount an effective response against tumours, this inflammation is actually much more likely to contribute to tumour growth and progression. In fact, 25% of all cancers are believed to have developed because of long-term inflammation suggesting that inflammation can also trigger tumour initiation. It is clear that remodelling of the tumour microenvironment often precedes tumour growth, both at primary sites and in metastatic lesions.

The majority of the meeting focussed on the very large repertoire of accessory cells in the tumour microenvironment: from macrophages to fibroblasts, T-cells to neutrophils, the extracellular matrix to myeloid-derived suppressor cells, all of which seem to promote carcinogenesis in their own way. The talks suggested that while each individual cell type has their own functions, crosstalk between these numerous cell types can change the overall effect and we must be cautious when concluding that only one cell type is responsible for an outcome. Another theme was the huge array of phenotypes within individual cell types. For example, Jeffrey Pollard spoke of microarray studies on macrophages that suggested discrete populations of macrophages occurring during each stage of tumourigenesis and at different locations within the tumour. He argued against the M1/M2 activation state of macrophages and instead hypothesized that there could be no clear distinction between macrophages; rather they exist with a broad range of phenotypes with subtly different functions throughout tumourigenesis.

A significant part of the meeting was spent discussing the role of the microbiome on tumourigenesis, and it not being a subject I knew much about, I really learnt a lot. There are 10 times more microbes that inhabit your body than the number of cells in your body, and 50-60% of stool dry matter is actually microbal! Lita Proctor (National Human Genome Research Institute, USA) gave a fascinating talk detailing the progress of the Human Microbiome project, an ambitious scheme hoping to detail and sequence the thousands of dynamic microbial communities involved in human health and disease. Other talks focussed in more detail on the role of the microbiome in controlling intestinal homeostasis and tumourigenesis. It is clear that inflammation of the colon (colitis) can change the luminal microbial community composition, which can lead to carcinogenesis, and later talks suggested that the risk of colitis might even be transmittable via intestinal microbes. All of which really put into context the importance of washing your hands regularly!

Another premise that came up several times, was the importance of thinking about which model organisms we use and why. Many researchers in the field use xenograft models whereby human cancer cells are injected into the tail vein of mice and experiments conducted on the resulting tumour. However, it was clear that whilst using cultured human cells has its advantages, the methodology is not always perfect. This was illustrated when Lisa Coussens (Oregon Health and Sciences University, USA) gave an engaging talk about the role of the adaptive immune system in xenograft mouse models, but was followed immediately by an impressive PhD student from the Netherlands Cancer Institute, Metamia Ciampricotti, who found absolutely no effect of the adaptive immune system in spontaneous murine tumours, which are perhaps more likely to model human cancers more closely. Cancer is a disease of the aged, but almost all researchers do their experiments on young, often female mice. It is clear however, that the immune system changes as organisms' age, and different immunological responses can be observed in older animals. There were also reports of sex dependent affects of T-regulatory cells on tumour progression.

Luke O'Neill (Trinity College Dublin, Ireland) closed the meeting with an excellent and entertaining talk that included a quote from David Baltimore (the Nobel laureate who discovered NF-kB) "Cancer, atherosclerosis, metabolic disease and autoimmunity are all secondary to chronic inflammation. This places inflammation at the centre of modern medicine". It was lines like these that really hit home and reminded the audience just how important and clinically relevant this field of research is.

I was also given the opportunity to present my own work in one of the Guinness fuelled poster sessions. My poster, which described recent studies of how the immune system impacts on cancer surgery using a Zebrafish model was clearly unusual in a field dominated by mouse models. However, I received plenty of attention and I got some very helpful feedback from passers by. I not only made many new friends at this meeting but also secured a promising clinical collaboration, which is extremely exciting for me. I am exceptionally grateful to the BSCB for the Honor Fell travel award that enabled me to attend this meeting.

*Nicole Antonio, University of Bristol*

# Microtubules: Structure, Regulation and Functions

23–26 May 2012. EMBL, Heidelberg, Germany

**The second meeting in the EMBO conference series on Microtubules attracted scientists from all over the world and from multiple disciplines to discuss recent advances in the field of tubulin.**

The conference was held in the architecturally stunning Advanced Training Centre (ATC) of the EMBL Heidelberg. The organisers Renata Basto (Institut Curie, France), Rebecca Heald (University of California, USA), Carsten Janke (Institute Curie, France), Michel O. Steinmetz (Paul Scherrer Institut, Switzerland) and Thomas Surrey (CRUK London Research Institute) did a brilliant job in selecting excellent speakers with a broad variety of topics.

Arriving at the EMBL in bright sunshine, we first had the chance to acknowledge the beauty of the venue with its two intertwining helices and the magnificent views over Heidelberg. The four-day conference, comprising eleven talk sessions and two poster sessions, started with a buffet lunch and the first opportunity to mingle with other participants. Each session had been filled with fantastic talks, out of which I will only be able to describe a few. My PhD project focuses on a protein complex that is required for the correct positioning and orientation of the mitotic spindle. Therefore, especially the sessions "Microtubules in cell division" and "Microtubule organisation in the mitotic spindle" were of great interest to me. However, I was particularly intrigued by talks about topics that were unfamiliar territory to me, like microtubule inner proteins, the bacterial cytoskeleton or a new alternative to the microtubule stabilising drug Taxol®.

Daniela Nicastro (Brandeis University, USA) and Aditi Maheshwari (ETH Zurich, Switzerland) presented their recent findings on so-called microtubule inner proteins (MIPs). Cryo-electrotomography or cryo-single particle imaging, respectively, have been used to obtain three-dimensional density maps of intact microtubule doublets, which showed the presence of proteins within these tubules appearing with precise periodicities. Not much is known regarding the identity of these MIPs. It was suggested they might be acetyltransferases, since K40-acetylations are acquired after assembly and are found on the inside of the tubule.

These acetylations are thought to stabilise microtubules and are involved in many biological processes like cell migration or cilium assembly. Maxence Nachury (Stanford University, USA) described his results on a knock-out mouse for TAT, the tubulin acetyltransferase required for K40-acetylations. To the wide surprise of the audience, this mouse appears perfectly normal and no developmental or other defects have been observed. However, acetylations might play a crucial role in blood platelet function as a talk by Karin Sadoul (CR Inserm, France) elucidated. She observed that activated platelets undergo severe shape changes (disc to sphere), which are concomitant with rapid deactylation of microtubules by HDAC6 followed by an extensive reacetylation. HDAC6 deficient platelets have hyperacetylated microtubules and spread faster. Moreover, Sadoul and colleagues were able to show that the disc-to-sphere transition is mediated by a motor-driven coiling of the marginal microtubule band.

In a very interesting presentation on the topic of microtubules in differentiated cells, Frank Bradke (DZNE Bonn, Germany) summarised his findings on axonal growth and regeneration. Neurons possess one axon and several dendrites. The microtubule stability within the axons is increased as indicated by acetylated tubulin. Bradke and colleagues aim to understand the neuronal polarity program in order to induce axon regeneration. They observed that nanomolar doses of the microtubule stabilising agent paclitaxel (Taxol®) induce the formation of more than one axon in the cell. Intriguingly, rats that suffered from an injury to the spinal cord were able to regenerate their central nervous system after being treated with low doses of paclitaxel.

An appealing alternative to paclitaxel, a drug that is used by almost everyone working on microtubules, was presented in a short talk by Jessica Field (Victoria University of Wellington, New Zealand). The compound Zampanolide is gained from bacteria living on marine sponges and is therefore easier to synthesize than paclitaxel. It stabilises microtubules but unlike paclitaxel, Zampanolide forms a covalent bond within its binding site. Thus, Zampanolide is an irreversible drug effective at nanomolar concentrations.

A fascinating fact that was revealed to me at the conference is, that also bacteria have an internal cytoskeleton. Martin Pilhofer (Caltech and HHMI, USA) has presented his electron cryo-microscopy data showing that the tubulin homologues bTubA and bTubB from microtubules comprising 5 protofilaments in bacteria.

Additionally, I was very impressed by all the talks including wonderful TIRF microscopy movies that supplemented various in vitro studies. Out of them, I was particularly amazed by the presentation of Sabine Petry (UCSF/HHMI, USA). Petry and colleagues have used TIRF microscopy to visualise microtubule nucleation at single molecule level in *X. laevis* egg extract, which demonstrated that microtubules are nucleated off existing microtubules. These "daughter" microtubules have the same polarity as the parental microtubules and branch off at very shallow angles up to 30°. Depletion of Augmin or TPX2 from the egg extracts abolished microtubule branching. On the other hand, addition of RanGTP to the *Xenopus* extract activated the microtubule-dependent microtubule nucleation, which was even enhanced by supplementation of TPX2. The astonishing movies with mCherry-Tubulin and EB1-GFP showing a rapid tree-like branching of microtubules kept the audience in fascinated silence.

The posters were displayed on the helices of the ATC building, which allowed each of the more than 200 posters to be presented in a unique way. The two 3.5-hour long poster sessions provided plenty

of time for discussions and a look at most posters. I got very good feedback on my poster as well as useful advice, and I was able to establish important contacts. Moreover, the Wine and Beer Session on Wednesday evening as well as the BBQ followed by a party on the last evening gave sufficient time for extended discussions and networking opportunities.

Altogether, the EMBO conference was very well organised and a very successful meeting. I was particularly impressed by the representation of young speakers and the quality of all talks. The amazing location and the wonderful sunny weather throughout completed this perfect experience.

I would like to thank the BSCB for my Honor Fell Travel award and the opportunity to attend this brilliant conference and to network with excellent scientists from all around the work.

*Anja Dunsch*
*Department of Biochemistry*
*University of Oxford*

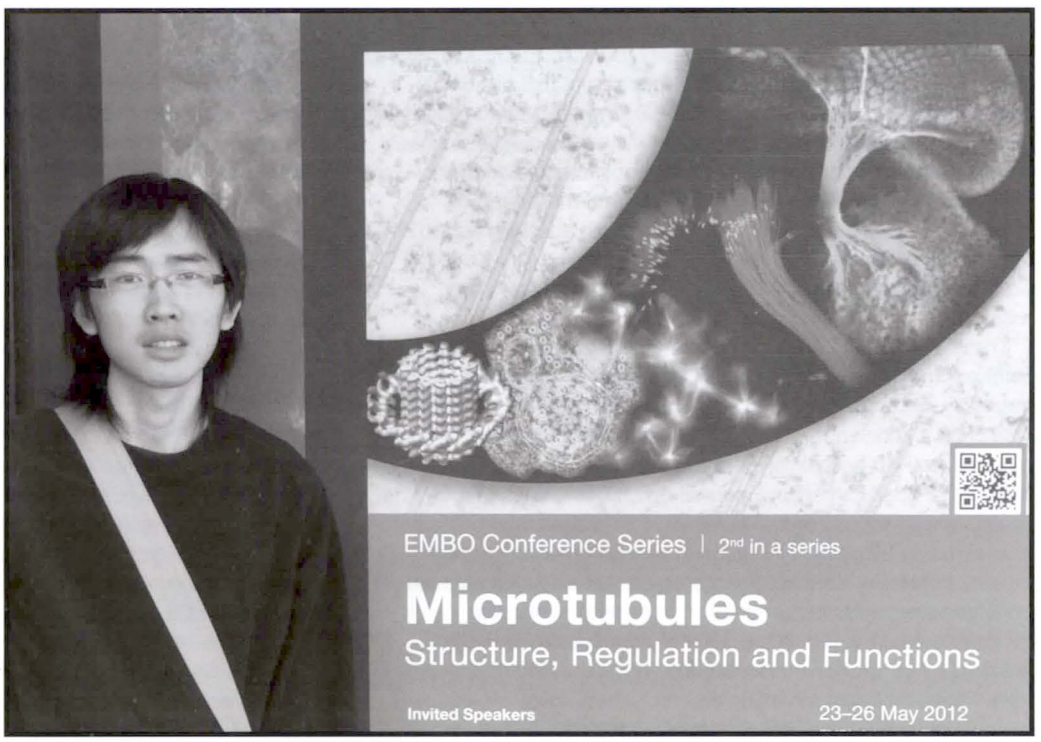
**This conference aimed to gather researchers from all over the world who study microtubules using different scientific approaches.**

The conference covered a wide range of microtubule research, including complex microtubule assemblies, microtubule-based transport, microtubule dynamics and regulation, microtubules in cell division, microtubule interactors, microtubules in differentiated cells, microtubules in disease mechanisms and microtubule organization in mitotic spindle. The conference lasted for 4 days, with 47 talks and 253 posters in total.

The first day of the conference started with registration and lunch in the foyer, giving chance for the attendees to interact with each other. The first scientific session started with a few talks focusing on microtubule assemblies. I especially enjoyed Daniela Nicastro's (Brandeis University, USA) talk on microtubule inner proteins (MIPs) in Chlamydomonas. By using cryo-electron tomography (cryo-ET), which provides excellent structure preservation and high resolution of sample imaging, her works showed that B-tubule of doublet microtubules contain 10 protofilaments (PFs). This resolves the long-standing question on total number of PFs present in B-tubule. Besides, microtubule inner proteins (MIPs) were observed in the lumen of microtubule. It was fascinating to realise for the first time that the microtubule is not a "hollow" structure.

The first evening was scheduled for a lecture from the keynote speaker, Eva Nogales (HHMI/University of California at Berkeley, USA). Unfortunately, she was unable to attend the meeting due to problems with her flight. This is a big loss to me since I am very keen to hear about her work on interaction of microtubule and kinetochore complexes. However, I did enjoy the evening with a longer dinner with some German beers, of course. Also, I had another good opportunity to interact with other participants in that evening.

In the second day, a series of talks on 'microtubule dynamics and regulation' were given. Maxence Nachury (Stanford University SoM, USA) presented his work on using permeabilised cells system to study transport into primary cilia. He presented a number of beautiful experiments showing that transport into primary cilia is size-dependent. David Sharp (Albert Einstein College of Medicine, USA) discussed roles of Fidgetin, Fidgetin-like 2 and Kif19 in controlling human cell migration rates. By using total internal reflection fluorescence (TIRF) assay, Melissa Gardner (University of Minnesota, USA) showed that microtubule catastrophe is a multi-step process that requires accumulation of a few defects. The catastrophe frequency is dependent on microtubule age, regardless of tubulin concentration used.



After a short coffee break, we received a special 'Landmarks in microtubule research' lecture from Susan Horwitz (Albert Einstein College of Medicine, USA). She discussed how Taxol was discovered and isolated from the bark of Taxus tree by Monroe Wall and Mansukh Wani and how she started to study the potential therapeutic effects of Taxol. Today, Taxol is well known as a microtubule stabiliser and is widely used as a drug for ovarian, breast and lung cancer patients. Her lab is now focusing on evaluating new drug combinations with Taxol, aiming to deliver an improved efficacy to treat cancer.

In the third day, Anthony Hyman (Max Planck Institute of Molecular Cell Biology and Genetics, Germany) gave a very interesting talk on importance of XMAP215 and its homologues to bind tubulin dimers. Xenopus's XMAP215 protein contains 5 TOG domains. By mutating two residues in each TOG domain to alanine, he showed that the XMAP215-TOG(AA) mutant does not bind tubulin nor promote microtubule growth. Besides, he demonstrated that an engineered "bonsai" TOG protein, which contains only two TOG domains with a basic region, has almost full polymerase activity.

My favourite oral presentation was from Richard McIntosh (University of Colorado, USA), who gave a lecture in the second 'Landmarks in microtubule research' in the last day. He summarised recent findings from different groups that provide a better understanding on how microtubule dynamics generate force to move cargo. Also, he mentioned some works in his lab showing that during microtubule depolymerisation, the microtubule shortens and flares outward. This provides the force to move cargo towards the spindle poles during anaphase.

Something not to be missed out is the 'hot topic session' in the last day. This started with a talk on microtubule studies in bacteria by Martin Pilhofer (Caltech and HHMI, USA). Then, Aditi Maheshwari (ETH Zurich, Switzerland) gave a talk on 3D structure of axonemal microtubule doublet. This was followed by Sabine Petry (UCSF/HHMI, USA), who talked about roles of augmin in microtubule-dependent microtubule polymerisation. The last talk in this session was given by Luke Rice (UT Southwestern Medical Centre, USA) on structural studies of TOG:tubulin complex.

We had two poster sessions in the conference, one in the second afternoon and another in the third afternoon. I presented a poster describing my work on how interaction between the Ndc80 and microtubule-associated proteins is critical for stable kinetochore-microtubule attachment. During the poster session, I identified some of the works presented that are closely related to my project. The poster sessions were very useful as I had sufficient time to discuss my project with other scientists in details. Overall, I received valuable feedback on my project by presenting my work in this conference.

The conference was a big success and I would like to congratulate the organisers for a fantastic conference. Definitely, I would recommend this conference to scientists working on microtubules, as you will gain unique experience and first-hand discussion from the meeting. Also, I would like to thank BSCB for the generous funding to allow me to attend an international scientific conference for the first time in my life.

*Ngang Heok Tang,*
*Cancer Research UK, London Research Institute*

# The ISSCR 10th Annual meeting

## 13–16 June, 2012. Yokohama, Japan

**To celebrate its 10th Anniversary, the ISSCR Annual meeting was held in Japan for the first time at the Pacifico Yokohama in Yokohama city. The ISSCR's annual meeting has become the world's premier stem cell research event serving as a forum for stem cell and regenerative medicine professionals from around the world.**

This was my first taste of an international scientific conference, and I certainly couldn't have asked for a more rewarding experience, particularly at this early stage in my career. Set amongst the impressive backdrop of Tokyo bay in the Pacifico Yokohama conference centre, the conference began with a warm welcome by ISSCR president Fred Gage.

Having arrived the previous morning with three of my fellow colleagues, we had just about recovered from the time difference ready for the first plenary session 'Early Life Decision'. Of great interest to my work involving Embryonic Stem (ES) Cells was the talk given by Austin Smith from Welcome Trust centre for Stem Cell research on 'The Core of ES Cell Pluripotency'. Recent work in his group has focused on the naïve 'ground state' of pluripotency, and how changes in the signalling environment can influence the expression of important transcription factors, which, while not core regulators of pluripotency, are part of an ES cell ground state circuit which is designed for ordered collapse to allow lineage specification. This work is greatly contributing to our understanding of expanding transcription factor network that governs ES cell pluripotency and Smith hopes this knowledge can be translated into efficient methods


of iPS cell generation in adult cell types.

Since the discovery of iPS cell technology in 2007, it is has transformed the way we think about regenerative medicine and stem cell biology. This has been reflected in the huge investment and commitment into iPS cell technology in recent years and indeed the first time location of this year's meeting, where they were first produced by Shinya Yamanaka and his group at Kyoto University. It was his former student however, Kazutoshi Takahashi of the Centre for iPS Cell Research and Application, Japan, who gave a talk on the first day. Having very modestly stated of his role in generating iPS cells 'I just did transfections', he focused on his work performing large-scale comparison of the performance of ES and iPS cell lines in differentiation assays and using gene markers to identify good performing lines based on their epigenetic status.

After the Presidential Symposium the exhibition hall was open for viewing for the first poster session and exhibitor booths. As I was presenting in the second session I was able to enjoy browsing the room and engaged a number of people about their work, with particular interest in the different experimental techniques applied by different groups to give me useful ideas about my own project. I was also able to chat to a market development rep from the Lonza booth, Scott, who gave me some useful advice regarding some difficulties I'd been having recently with their Nucleofector Kits. He also showed me the new 4D-Nucelofector system, a much more efficient platform than we currently use and since my return he has put me contact with the local Lonza rep about arranging a trial to improve my transfection experiments.

The end of day one brought us the chance to explore Yokohama, Japan's second largest city and we made our way to its world famous China town for dinner. The food in Japan was something I was hugely looking forward to on this trip and our first proper meal, though Chinese in origin did not disappoint! Having settled into the first day of the conference it really started to sink in where we'd travelled to and I was looking forward to making the most of the next few days.

From Thursday onwards each day followed a similar pattern, with a set of plenary talks in the morning followed by different concurrent sessions in the afternoon. Sandwiched between these each days was a series of innovation showcases, allowing life science companies to promote their research tools. Most often these were accompanied by lunch in the form of 'Bento boxes', which was no small incentive. A traditional bento contained a mix of Japanese cuisine with rice, fish or meat, and one or more pickled or cooked vegetables, though I wasn't always sure exactly what I was eating! Over the course of the meeting I attended several different showcases relevant to my project including a method of cell surface marker screening to identify uniquely expressed markers between stem cells and their derivatives (BD Biosciences). Another interesting presentation was on the use of extracellular Laminin proteins as modulators of human (h)ES cell self renewal in vitro (Biolamina), in particular Laminin-521 which supports hES cell derivation in defined feeder-free medium and improves their survival in a single-cell state.

I tried to attend to a wide range of different talks related to my work and areas of research I was particularly interested in. One of my favourite concurrent sessions occurred on the Saturday entitled 'Self-Renewal Mechanisms', which included a talk by Ian Chambers, University of Edinburgh, Edinburgh about the co-ordination between Nanog and Oct4 transcription factors in regulating pluripotency and differentiation. Another session entitled 'Epigenetics of Stem Cells' contained a talk by Naoko Hattori, National Cancer Center Research Institute, Tokyo, presenting a novel technique for visualizing co-localization of different histone modifications at a single cell level using a technique called in situ proximity ligation which may have important applications in the detection of different cell types in a heterogeneous population such as cancer or tissue specific stem cells.

On the Friday of the conference I presented my poster on 'The Role of E-cadherin in Mouse ES cell pluripotency'. During the couple of hours I spent by my poster I received a fair bit of interest and some useful observations that has given me plenty to think about for future work I may do. Finally after a few days of quite intense seminars and poster sessions it was nice to relax a bit with a few (too many!) Saki's at the junior investigator social event put on by the ISSCR.

In all I found the experience to be extremely rewarding. I gained valuable insight into the way research is communicated between scientists, made some great contacts and visited an amazing country. On a special note we were honored with a visit from the Emperor and Emperess of Japan to celebrate the 10th anniversary of the ISSCR, which is something I won't forget. I would like to thank the ISSCR for putting on such a successful and well-structured conference, and also the BSCB for very generously awarding me an Honor Fell Travel Award.

*Joe Segal, University of Manchester*

# EMBO Conference Series: *C. elegans* Neurobiology.

14–17 June 2012. EMBL Heidelberg, Germany.

**Organised in alternate years to the larger international worm meeting, the smaller topic meetings provide an opportunity for focus on a particular aspect of *C. elegans* biology. This enables a vibrant discussion of new discoveries, new technologies and new reagents as well as providing a setting where PhD students and post-doctoral researchers can present their research at a major meeting.**

This year it was the turn of neurobiology and scientists from all over the world gathered to discuss everything from development of the nervous system to behaviour, signalling and new technology.

The scientific program organized by William Schafer (MRC Laboratory of Molecular Biology, Cambridge), Jean-Louis Bessereau (École normale supérieure Paris, France) and Gert Jansen (Erasmus MC, The Netherlands) was structured so that each session had an invited keynote speaker followed by shorter presentations that were selected from abstracts. On the first night, the conference kicked off with new technology and Andrew Gottschalk (University of Frankfurt, Germany) talking about a clever way of looking at synaptic transmission by using optogenetics. Of particular interest to me during this session were the talks on the advancement of microfluidics in orientating and keeping worms still during imaging (Hang Lu, Georgia Institute of Technology, USA and Sudip Mondal, Mechanical Engineering Department, USA). This technology is something that I am now thinking about using during my PhD.

Day two covered development of the nervous system and behaviour. As I am particularly interested in worm locomotion, the talk by Lin Xie, (Institute of Medical Sciences, University of Toronto, Canada) on a new fainter mutant nlf-1 was especially interesting as we work on one of the other fainter mutants. After dinner, Josh Kaplan (Massachusetts General Hospital, USA) was the keynote speaker and gave an interesting overview of his recent work. Before he presented however, Stephen Nurrish (my supervisor) introduced his old supervisor and some entertaining photos from his time in the Kaplan lab were presented much to everyone's amusement.

The evening featured a poster session that gave people the chance to network, greatly aided by the ample supply of beer. As I was not presenting during this session I wandered around looking at what other people in the field had been working on recently which led to plenty of informative discussion on new techniques and reagents.

The third day's focus was on the synapse and sensory responses. Since the synapse is the topic on which my PhD is based I really enjoyed all of the talks. The keynote speaker was my supervisor (Stephen Nurrish, MRC Laboratory for Molecular Cell Biology) and Clara Essmann, a post-doc in my group also gave a talk. It was really useful to hear feedback about our research from the worm community. The sensory response session brought interesting debate about whether worms sleep, something that I had never really thought about before. Neuropeptides also featured heavily in day three, seemingly being the hot topic of the moment. Of particular interest was the talk by the keynote speaker Lindy Holden-Dye (University of Southampton).

In the evening there was another poster session and this time it was my turn to present. I found this to be a very valuable experience as unlike other conferences that I have presented at, everyone works in the same field so many people were familiar with my research and lots of people had really useful ideas about new directions to take my research in. I really appreciated the level of feedback about my work that I got especially as I am just about to enter my final year.

After the poster session there was a lively BBQ although after a gloriously hot and sunny day it decided to rain. This didn't dampen our spirits though and a brilliant band playing everything from recent songs to 80s cheese had us dancing inside until the small hours.

The final day's theme was signalling. Of note was a particularly interesting talk given by Binjgie Han (Yale University, USA) on GABA neurons switching from excitatory to inhibitory during development. After the session there was an award ceremony where winners of the poster prizes for each topic were announced. I was delighted to discover that I had won the prize for best poster in my area for my poster titled "DAT-1 modulates neuronal RHO-1 signalling". It was a wonderful way to finish off a thoroughly enjoyable conference.

After we had picked up our packed lunches there was just enough time for a whistle stop tour of Heidelberg before we headed to the airport.

I found the whole experience really rewarding and I am extremely grateful for the BSCB for providing me with this fantastic opportunity to make new contacts and learn so much in the beautiful city of Heidelberg.

*Kimberley Bryon-Dodd*
*MRC Laboratory for Molecular Cell Biology, UCL.*

# Glia in Health and Disease,

19–23 July 2012, Cold Spring Harbour Laboratory, USA.

**This biennial meeting aims to bring together leading scientists with their more junior colleagues to promote the exchange of ideas and techniques relevant to glial biology. The meeting was organised by William Talbot (Stanford University, USA) and Dwight Bergles (John Hopkins University, USA).**

The meeting consisted of 8 sessions on aspects of glial biology ranging from development of glia and glial function at synapses to the roles of glia in CNS injury and disease. Each session was divided into a number of smaller talks given primarily by postdocs or students with two longer talks by more senior invited speakers. This format was particularly useful as it gave us an opportunity us to hear about work in progress and allowed junior scientists to present their work to other researchers in the field. In this report I will not attempt to cover all the talks or sessions, but will focus on a few talks that I found especially interesting.

The meeting began with an evening session on glial development. The first speaker, Anne-Laure Cattin from the Lloyd lab (UCL) presented her work examining the signals that regulate the migratory response of Schwann cells following nerve transection. She presented evidence that Schwann cells move along newly formed blood vessels to cross a bridge of tissue into the damaged area. The new blood vessels are generated in response to angiogenic signals produced by macrophages in the bridge as a result of increased levels of hypoxia caused by the initial injury. Another talk by Andrea Brand (The Gurdon Institute) used *Drosophila* to address the regulation of quiescence in neural stem cells (neuroblasts) *in vivo*. Insulin/IGF-like peptide produced by a subset of glial cells in response to increased nutrition was shown to be necessary to stimulate neuroblasts to exit quiescence during development, acting via the PI3K/AKT pathway in the neuroblast. However if trafficking was blocked in the glial cells then the neuroblasts failed to reactivate leading them to investigate the role of glial gap junctions in the reactivation of the neuroblasts.

The next morning session focused on myelinating cells and the talk by Dave Lyons (University of Edinburgh) was particularly striking. Using zebrafish to image oligodendrocyte myelination in real time *in vivo* he showed that oligodendrocytes initially ensheath a large number of axons and that these initial ensheathments are dynamic, but over time the number of ensheathed axons decrease and stabilise as myelination occurs. Ben Emery (University of Melbourne, Australia) presented work examining the role of myelin gene regulatory factor (MRF) in the maintenance of myelin. Using a conditional knock out of MRF in myelinated nerves he observed a rapid loss in myelin gene expression followed by a slower CNS demyelination. Thus MRF is important for both oligodendrocyte developmental myelination and myelin maintenance.

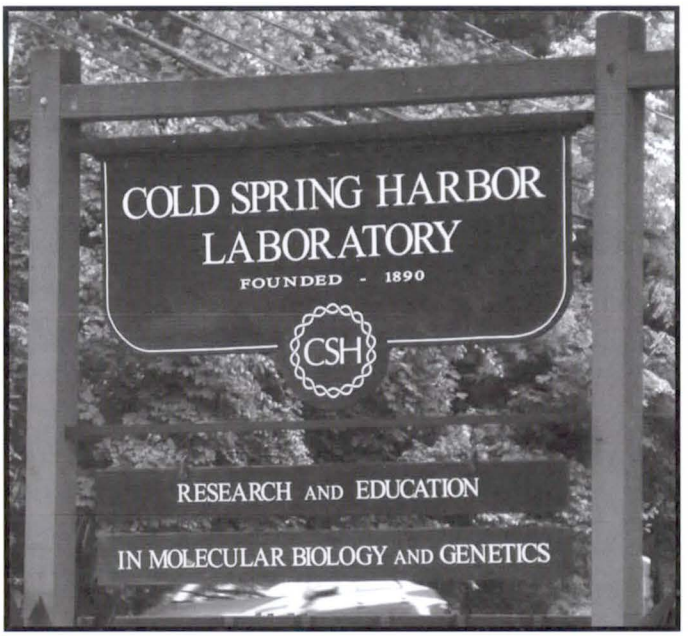
Ethan Hughes from the Bergles lab (John Hopkins University School of Medicine) used in vivo two-photon confocal imaging to follow EGFP labelled NG2+ oligodendrocyte precursor cells in the mouse cortex. Over a period of up to 3 months the cells were seen to proliferate, migrate and differentiate, but the overall cell population and distribution remained stable. Following a CNS laser lesion the NG2+ cells migrated towards the lesion and were involved in glial scar formation. Magdalena Götz (Helmholtz Zentrum München,

Germany) also used *in vivo* imaging to follow genetically labelled astrocytes in the mouse brain following a cerebral cortex stab injury. They observed that the vast majority of astrocytes proliferating in response to the injury were perivascular despite this population forming a relatively small proportion of the whole astrocyte pool. Interestingly no astrocyte migration towards the lesion was observed.

Microglia had an entire session devoted to them. There were two talks from Beth Steven's lab (Children's Hospital Boston, Harvard Medical School, USA) using the retinogeniculate system to examine the role of microglia in synaptic pruning in the developing brain. She presented evidence that this process is regulated by neuronal activity and is complement dependent. Alison Rosen from Beth Steven's lab (same affiliation) examined the role of TGF in the induction of the complement cascade in this system and presented data suggesting that TGF signalling is both necessary and sufficient for this process. Richard Ransohoff's talk (Cleveland Clinic Lerner Research Institute, USA) focused on the problem of distinguishing microglia in the brain from infiltrating monocytes during inflammation. He used CCR2-RFP/CX3CR1-GFP mice, which label the two populations of cells separately to show that the two cell types had different roles during disease progression in a mouse model of MS. Monocytes were involved in attacking the myelin and then microglia cleaned up the resulting myelin debris.

The keynote lecture was given by Klaus-Armin Nave (Max-Planck Institute of Experimental Medicine, Germany). After a general introduction to glial cells and myelin the talk focused on a recently published study examining the role of oligodendrocytes in providing metabolic support for axons. He then moved onto another piece of published work on the use of a high cholesterol diet to treat Pelizaeus- Merzbacher disease (PMD) in a mouse model of the disease which has extras copies of the proteolipid protein gene 1 (PLP). This strategy was able to successfully prevent further deterioration in mice with existing defects and when administered to mice at a younger age, during the peak of normal myelination, this treatment prevented oligodendrocyte loss and allowed the maintenance of motor function. This work has important implications for the treatment of PMD patients with duplication of PLP.

There were a number of occasions for us to mingle and discuss




work. The first of two afternoon poster sessions was followed by a cheese and wine party. The conference lobster dinner on the last night was great fun as most of my table had to be talked through cracking open the lobster. We also took part in the traditional Glial cell conference Calcium wave, organised by Beth Stevens. Before the dancing started some of us went to the beach in the dark to look for bioluminescent algae in the water, although none of us were adventurous enough to go in and sadly we couldn't see anything from the shore.

Overall, the conference was very enjoyable and intellectually stimulating and I would like to thank the BSCB for their travel grant which allowed me to attend this meeting.

*Marie Harrisingh, MRC Centre for Regenerative Medicine, University of Edinburgh*

# North of England Cell Biology Forum 2012

## 14 September, 2012. The Faculty of Life Sciences, University of Manchester.

This NECB forum is held annually, and consistently attracts more than 100 delegates. This year, there were 108 attendees, who came from across the north of England, as well as a few that travelled up from the Midlands. As in previous years, a large proportion of the delegates were post-graduate students and post-doctoral fellows, and all of the presentations were given by students and post-docs.

The standard of the talks (12 in total) and posters (32 in total) was impressive, and is a testament to the abilities of junior scientists performing cell biology in the north of England.

Prizes were awarded for the best 3 talks and best 3 posters. Yvonne Nyathi from Martin Pool's lab at the University of Manchester won first prize for her talk on "Role of the ribosomal protein RPL17 in co-translational translocation", while Liam Cheeseman from the lab of Steve Royle at the University of Liverpool won the poster first prize for his presentation on proteins that cross-link the mitotic spindle.

By common consensus, the meeting was a success, with high quality science and lively discussion at both the talks and poster sessions. The unique networking opportunity offered by this meeting should lead to increased interaction and collaboration between researchers at all levels working at the various Universities in the north of England. It should also help inspire the more junior students to pursue a career in scientific research.

We are extremely grateful to the British Society for Cell Biology for their generous sponsorship of the event, which was essential for its success.

*Martin Lowe*

# Experimental Biology Conference 2012

21–25 April, San Diego, California

**This year's Experimental Biology Conference was held in the San Diego Convention Centre, overlooking the beautiful San Diego bay. Thousands of scientists from various biological disciplines attended the conference. Conference sponsors included the American societies for anatomy, physiology, biochemistry and molecular biology, pathology, nutrition, and pharmacology. The conference spanned five days, featuring plenary award lectures, oral and poster presentations, and on-site career services.**

Among the first two days' plenary lectures, I particularly enjoyed Christine Guthrie's talk on spliceosome, the RNA-protein complex that removes introns from pre-mRNAs. Her group at USCF used single molecule FRET to study the ATP-dependent conformational rearrangement of spliceosome. This led to the revelation that spliceosomes are highly dynamic nanomachines that operate close to thermodynamic equilibrium. She was awarded this year's ASBMB-Merck award for her contribution to the RNA splicing field.

There were many interesting talks in the Lipid Droplets Symposium on Sunday afternoon. Lipid droplets, the energy storage organelles in most cells, have attracted attention due to their importance in lipid-based diseases, such as obesity, diabetes and atherosclerosis, and in biofuel production. Tobias Walther from Yale University has used mass spectrometry based proteomics to identify thousands of proteins associated with lipid droplets. He talked about two fundamental questions his group has addressed: how lipid droplets grow, and how the need for surface phospholipids is sensed and balanced during lipid droplet growth. David Silver (Duke National University of Singapore) discovered two new lipid droplet proteins FIT1 and FIT2; the active research in his lab focuses on delineating the roles of FIT proteins in triacylglycerol synthesis. The following day's lipid droplet workshop has also sparkled interest among researchers from both academia and industry.

The Monday morning's plenary lecture was delivered by Prof. XiaoDong Wang, who has identified many key players in the apoptotic signalling pathway. Having recently moved back to China, Prof Wang moved on to dissect the cellular necrosis pathways in his new lab at the National Institute of Biological Science, Beijing. His group accidentally discovered that in response to a Smac-mimetic ligand and the tumour necrosis factor TNF-$\alpha$, a number of cancer cell lines die through necrosis, rather than apoptosis. Subsequent study by his group revealed RIP1 and RIP3 as two crucial signalling proteins in necrosis pathway. Interestingly, a kinase dead kinase called MLKL seems to act as a substrate of RIP3 and eventually leads to mitochondria fragmentation.

It was a great pleasure for me to present my poster 'A novel checkpoint inhibitory role of Rif1 at damaged yeast telomeres' at the telomere biology session. I have received wonderful feedback and encouraging words from experts in the DNA damage field. In the same session, Cristina Bartocci, a postdoc researcher from Eros Lazzerini Denchi's lab presented a poster on a novel method to pull down telomere-associated protein complex and then the identification of each protein component by mass spectrometry. This technique, in essence, is an equivalent of a 'reverse ChIP', therefore is amusingly named PICh (proteomics of isolated chromatin segments).

In the minisymposium on Nutrition and Inflammation, Ruth Grossmann from Emory University presented her interesting poster on the impact of high-dose vitamin D on decreasing plasma TNF-$\alpha$ and IL-6 concentration in cystic fibrosis patients. Her poster went on to win the best poster awards for the American Society for Nutrition.

On the last day of the conference, Kim Orth, this year's 'Young Investigator', gave an inspiring talk 'Black spot, black death, black pearl: the tales of bacterial effectors.' Her group has discovered new mechanisms by which pathogenic bacteria hijack the host cells' signalling pathway. For example, they found that Vibrio paraheomolyticus, the bacteria living in oysters that causes seafood poisoning, induces cell death by taking advantage of the host cells' defense mechanism, autophagy. After entering the cells, these bacteria modulate host cells' actin cytoskeleton and ultimately lead to cell lysis. Kim's lab also discovered that pathogenic bacteria that contain conserved Fic domains uses a novel process called AMPylation to modify their protein substrates.

In the Chromatin and Transcription session, Karen Adelman talked about 'Probing the dynamics of promoter-proximally paused Pol II'. Using genome wide Chip-seq technique, her group found that RNA Pol II 'pauses' at many promoter regions, resulting in the synthesis of short (25-60nt) mRNA transcripts. The release of Pol II is crucial for the transcription of genes for DNA damage response and inflammation. Interestingly, David Levin from Boston University also described a similar phenomenon in yeast cells called transcription attenuation. His current research focuses on finding new transcription attenuation release factors; these factors are likely to be crucial for the activation of stress-induced genes.

The overall standard of the research at this conference was outstanding. As a newly graduated PhD student, I have benefitted immensely from attending the conference. It has opened up my eyes to the wonderful research carried out by people outside of my immediate discipline; and this has helped me to choose a field that I want to pursue in my post-doc research. During the conference, I also talked with several lab leaders who I then I had interview with, and I've taken a post-doc position with one of them. For these reasons, I think EB conference is excellent for the late stage PhD students who want to find a favorite lab, or are in search for an exciting field to pursue after graduation.

Finally, I would like to take this opportunity to thank the British Society for Cell Biology for providing me with a generous travel fund. I also want to thank Professor Dong Wang for encouraging me to attend this wonderful event.

*Yuan Xue, PhD*
*Crucible Lab, Institute for Ageing and Vitality*
*Newcastle University, UK*

# BSCB / BSDB Joint Spring Meeting 2013

University of Warwick, 17–20 March 2013.

The Joint Spring Meeting of the BSCB and BSDB is an exciting blend of cell and developmental biology; however, we have also significantly revamped the format for this year. The aim is to make it a 'must attend' event for all cell and developmental biologists in the UK. The overlap between cell and developmental biology means that many of the sessions will be of interest to all delegates and the lines between BSCB and BSDB programmes at the meeting have been blurred.

The BSCB programme will be kicked off by the plenary lecture by Professor David Drubin (University of California, Berkeley), an internationally-renowned cell biologist who has made significant contributions to understanding membrane trafficking and the cytoskeleton. As always, at this flagship meeting, the speaker line up is excellent and the sessions include: Epithelia and Mechanosensing, Cell Cycle and Death, Motors and Morphogenesis, Cancer Models, Trafficking, Stem Cells and Regeneration, Gene Regulation, Neurons and Nervous Syetms.

The final day sees a joint BSCB/BSDB session with some fantastic speakers to encourage full participation in the meeting. The chairpersons for all sessions also constitute a constellation of world-class scientists. The BSCB Hooke Medal winner of this year will also give a talk in this meeting. There will be a call for abstracts to present short talks that will be interspersed between invited speakers and, of course, plenty of poster slots to fill.

University of Warwick accommodates a fantastic conference facility and several social events will be arranged to facilitate informal communication between meeting participants. Details on speakers, venue, bookings and so on can be found by visiting the website (www.bscb.org). We look forward to welcoming you in March.

### Scientific organizers

Jean-Paul Vincent, Steve Royle, Andrew McAinsh (BSCB)
Fiona Wardle, Keith Brennan, James Briscoe (BSDB)

## Programme Outline

## 17th Sunday

### Evening

BSCB Plenary Lecture: David Drubin (University of California)
BSDB Plenary Lecture: Olivier Pourquie (IGBMC, Strasbourg)

## 18th Monday

### Morning: CELL CYCLE and DEATH

Jody Rosenblatt (Huntsman Cancer Institute, Utah)
Tarun Kapoor (Rockefeller, New York)
Andreas Bergmann (M.D. Anderson Cancer Center, Texas)
Duojia Pan (HHMI, Johns Hopkins)
Julie Welburn (Wellcome Trust Centre for Cell Biology, Edinburgh)
Plus 2 short talks from abstracts

Alternative session: **Epithelia and Mechanosensing**

### Afternoon: CANCER MODELS

Maria Dominguez (Universidad Miguel Hernández, Alicante)
Liz Patton (MRC Human Genetics Unit, Edinburgh)
Freek van Eeden (Biomedical Sciences, Sheffield)
Dave Adams (Sanger Institute, Cambridge)
Tariq Enver (UCL Cancer Institute)
Plus 2 short talks from abstracts

Alternative session: **Motors and Morphogenesis**

**Evening:** BSCB Hooke Medal Talk; BSDB Waddington Medal Talk

## 19th Tuesday

### Morning: TRAFFICKING

Ludger Johannes (Institut Curie)
Graca Raposo (Institut Curie)
Gerd Jürgens (University of Tuebingen)
Liz Smythe (Biomedical Sciences, Sheffield)
Tao Uttamapinant (MIT)
Plus 2 short talks from abstracts
Alternative session: **Gene Regulation**

### Afternoon: NEURONS and NERVOUS SYSTEMS

Juan Burrone (King's College London)
Marysia Placzek (Biomedical Sciences, Sheffield)
Mario de Bono (MRC Laboratory of Molecular Biology, Cambridge)
Claudio Stern (UCL)
Christine Holt (University of Cambridge)
Plus 2 short talks from abstracts
Alternative session: **Stem Cells and Regeneration**

**Evening:** Conference Dinner

## 20th Wednesday

### Morning: JOINT BSCB/BSDB SESSION

Gero Miesenbock (University of Oxford)
Gaudenz Danuser (Harvard Medical School)
Charles Streuli (University of Manchester)
Kathryn Anderson (Memorial Sloan-Kettering Cancer Center)
Robb Krumlauf (University of Kansas)
Plus BSDB Beddington Medal Talk

**Chairpersons:**
Jim Smith (NIMR/Crick Institute London)
Austin Smith (Wellcome Trust Centre for Stem Cell Research, Cambridge)
Steve Wilson (University College London)
Roger Patient (Weatherall Institute of Molecular Medicine, Oxford)
David Owen (Cambridge Institute for Medical Research)
Anne Ridey (King's College London)
Clare Isacke (ICR, London)
Daniel St. Johnston (Gurdon Institute, Cambridge)
Tim Hunt (Cancer Research UK, London Research Institute, Clare Hall)

# BSCB PhDs

## Getting married during your PhD: a survival guide

Kimberley Byron-Dodd

The observant amongst you will have noticed the recent change of surname. I have committed the unspeakable act of getting married during my PhD, balancing the planning of experiments with planning the biggest day of my life.

Oddly enough, I am the third consecutive PhD student to get married whilst a student in the Nurrish lab. It seems that getting married during your PhD is fairly common, at least in my institute. So for those of you thinking of taking the plunge I would like to offer the wisdom that I have learned.

### 1) Don't get married during your final year.

Now I don't want to discourage you from getting married whilst doing your thesis, as although it was difficult I am very glad that I did it.

I am even more glad though that I did it in my second and not my final year. My husband was in the process of writing up and he found the whole process incredibly stressful. Writing your thesis is a painful enough experience without adding the stress of planning your wedding.

Unless of course you are the kind of person who is happy to let other people plan your big day for you, or thrives under pressure, it is probably not the best idea.

### 2) Try and stay focussed

It is very easy to get caught up in planning a wedding. There are lots of other people besides you and your fiancé (e) who will be really excited and want to have input on everything from venues to presents. Planning will consume as much time as you let it.

It is important to make sure that you are on top of things in the lab as your PhD is your time to shine. I found it useful to write weekly and monthly targets of what I wanted to achieve in the lab to make sure that I was still working as hard and not getting too distracted.

In the final few weeks this all flew out the window as our venue co-ordinator, the florist and the vicar (not to mention all our relatives) were constantly ringing me as all manner of problems arose. I was desperately trying to finish experiments and make a poster for the conference I was going on straight after my honeymoon and having to deal with all those calls was a big distraction.

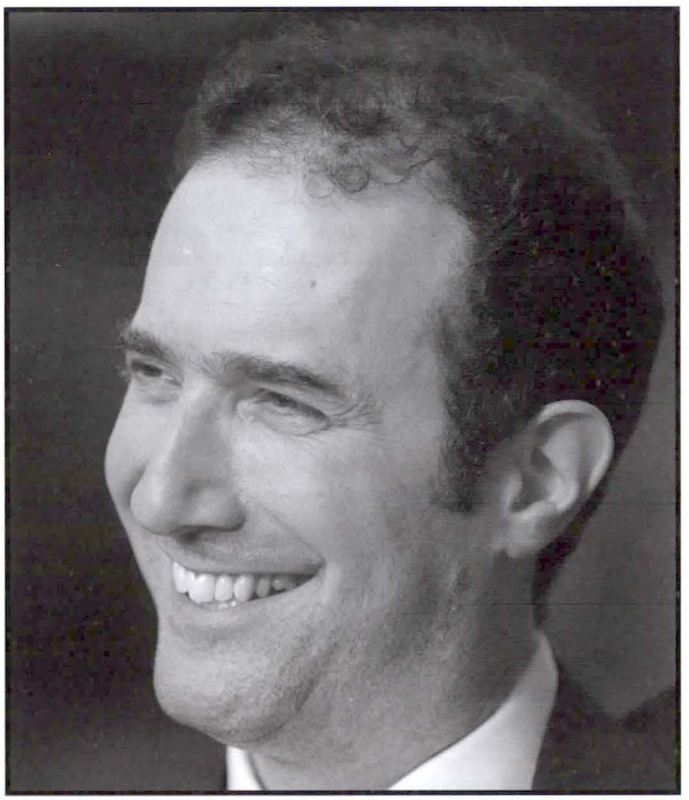
If you can, delegate tasks to other people to help lighten your load.

### 3) Allow yourself enough time to plan your wedding

We had a fairly long engagement (just over a year), as I wanted to try and do things gradually. This helped me space most things out so that I wasn't trying to do everything at once and meant that I could plan experiments around appointments. I know a number of other people who have planned a wedding in three months and they found that every waking second of their time was consumed by wedding planning. I am not saying my way was the best way, but I certainly found it less stressful than they did.


Finally, remember to enjoy yourself. Doing your PhD should be an enjoyable process but at times it will be really challenging. Your wedding should be a memorable day and a chance to relax and have some fun. If done correctly there is no reason why planning a wedding and doing your PhD can't both be a pleasurable experience.

# BSCB President's report



2012 has been an exciting year for the BSCB, and there have been some important changes that will affect all our members.

Perhaps the most important changes have been to the format of the BSCB Spring Meeting and our formal agreement with the BSDB to make this a joint meeting until at least 2015. Historically, we have often held this meeting jointly with the BSDB, as the two Societies share many areas of common interest. Attendance at the Spring Meeting, however, has been gradually declining in recent years, and so we talked to many attendees at last years meeting, as well as to non-attendees, to better understand what they liked and didn't like about the meeting. As a result, we have made some alterations to the way these meetings are structured; Liz Robertson (chair of the BSDB) and I explain the rationale for these changes on page 2. Please read the piece, register for the meeting, and let us know what you think.

The programme for 2013 Spring Meeting looks outstanding. Whether you are a first-timer or a seasoned veteran (who perhaps hasn't attended for a few years now), I urge you to attend. You will have a chance to demolish Liz and me in the infamous annual student's pub quiz. Our team, while admittedly not students in the strictest sense of the word, has now won this competition for two years in a row – last time, in a nail-biting tie-breaker about how fast a squirrel's heart beats. Surely, there must be some of you students (or oldies like us) out there who know more about this sort of thing than Liz or I do?

There was no official BSCB Autumn Meeting in 2012, as every five years we support the Royal Microscopical Society's microscopy-themed Abercrombie Meeting. This years meeting was held in Oxford and, by all accounts, was a great success. The 2012 Spring Meeting in Warwick was held jointly with both the BSDB and the Japanese Society of Developmental Biology, and it too was a great success (did I mention that we won the pub quiz?). We owe a big thank you to our BSCB organisers, Tomo Tanaka and Helfrid Hochegger, and the BSDB equivalents, Kim Dale and Malcolm Logan, who put together a spectacular scientific programme.

Another important change, which I hope many of you will have noticed, is that we are finally modernising our membership database. In the past, our Membership Secretary (currently Dan Cutler) and Margaret Clements maintained this database. Those steeped in BSCB folklore will know that Margaret is something of a mythical figure. She is not a cell biologist, but she worked for the Company of Biologists, the main financial backer of the BSCB. Somehow, in the dim and distant past, Margaret volunteered to help maintain the BSCB membership list, and she has worked tirelessly on this task, without reward, for many years. On behalf of all of us, I thank her for her invaluable help.

Even with Margaret and Dan's hard work, it has proved very difficult to keep the database up to date, and the collection of membership fees has become something of an annual marathon for our Treasurer, Adrian Harwood. We have now outsourced the handling of the membership database to Portland Customer Services (PCS, a spin-off from the Biochemical Society). This transition has required a Herculean effort by Adrian and Dan, and you can read more about it on page 3. Hopefully, we will reap the benefits of their hard work over the coming years. By now, you all should have heard from PCS about the various ways you can pay your membership fees. These are hard times, but I hope you will agree that the fees (£35 for regular members and £15 for students) are exceptional value. Membership has many benefits, including support for cell biology in the UK. When registering for the Spring meeting, why not check that your membership details are up to date as well? It would be a good chance to remind yourself about all the good things the BSCB does and why being a member is so worthwhile.

The BSCB committee are generally a hard working group, but Adrian Harwood deserves special mention. Not only has he managed our accounts and the membership database overhaul, but he was also the driving force behind the establishment of our Summer Vacation Studentship Programme. This Programme provides undergraduate students with a stipend and some laboratory costs to work in a cell biology lab in the UK during the summer holiday. It has been running since 2008, and it goes from strength to strength, with more than 40 students supported so far. Sadly, it is now time for Adrian to retire as Treasurer. We will miss him sorely, and I want to thank him for all that he has done for the Society. I am delighted and very grateful that Caroline Austin has agreed to take on this responsibility.

Finally, our Post-Doc Representative, Iman van den Bout, has retired this year. I thank him for his valuable work on the committee and wish him luck in his new career – as a bicycle entrepreneur. I am delighted to welcome on board Alexis Barr from the Institute of Cancer Research in London as our new Post-Doc Rep. Thanks to the many of you who applied for this position; we were truly amazed by the large number of excellent applications we received. In these tough times, it is uplifting to see so many young scientists keen to get involved. The future may be bright after all.

*Jordan Raff*
*November 2012*

# The British Society for Cell Biology

## Statement of Financial Activities for the year to 31 December 2010

| | 2010 Unrestricted £ | 2010 Restricted £ | 2010 Total £ | 2009 Total £ |
|---|---|---|---|---|
| **Incoming Resources** | | | | |
| Incoming resources from generating funds: | | | | |
| Voluntary income | 30,000 | 27,500 | 57,500 | 57,500 |
| Incoming resources from charitable activities: | | | | |
| Meetings | 35,021 | – | 35,021 | 2,264 |
| Subscriptions | 31,918 | – | 31,918 | 31,443 |
| Investment income: | | | | |
| Bank interest | 437 | – | 437 | 782 |
| Other incoming resources | 22 | – | 22 | 8,535 |
| Total incoming resources | 97,398 | 27,500 | 124,898 | 100,524 |
| **Resources Expended** | | | | |
| Charitable Activities: | | | | |
| Grants payable: | | | | |
| CoB/Honor Fell travel awards | – | 26,773 | 26,773 | 27,016 |
| Other grants | 611 | 500 | 1,325 | 611 |
| Studentship | 16,399 | – | 16,399 | 9,709 |
| Costs of meetings | 61,119 | – | 61,119 | 39,876 |
| Newsletter costs | 5,883 | – | 5,883 | 5,139 |
| Website expenses | 2,373 | – | 2,373 | 7,295 |
| Governance costs | 5,223 | – | 5,223 | 6,808 |
| Bad Debt | | | | |
| Total resources expended | 91,824 | 27,273 | 119,097 | 96,454 |
| Net movement in funds for the year | 5,574 | 227 | 5,801 | 4,070 |
| Reconciliation of funds | | | | |
| Funds brought forward at 1 January | 220,324 | 8,842 | 229,166 | 225,096 |
| Funds carried forward at 31 December | 225,898 | 9,069 | 234,967 | 229,166 |

| | 2010 £ | 2010 £ | 2009 £ | 2009 £ |
|---|---|---|---|---|
| **Current Assets** | | | | |
| Debtors: | | | | |
| Prepayments and accrued income | | 478 | | 433 |
| Cash at bank and in hand: | | | | |
| National Savings Investment Account | | 71,850 | | 71,635 |
| HSBC Bank Accounts | | 165,871 | | 159,951 |
| | | 238,199 | | 232,019 |
| **Less: Creditors falling due within one year** | | | | |
| Creditors and accruals | 3,232 | | 2,853 | |
| | | 3,232 | | 2,853 |
| **Net Assets** | | 234,967 | | 229,166 |
| **Funds** | | | | |
| Restricted | | 9,069 | | 484 |
| Unrestricted | | 225,898 | | 228,682 |
| | | 234,967 | | 229,166 |

# 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.

**The following rules apply:**

- 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.
- Members who are based outside of the UK **can only** receive funds to attend BSCB-sponsored meetings in the UK.
- **No lab may receive more than £1000 per calendar year. *Awards are discretionary and subject to available funds***

**All applications must contain the following:**

- the completed and signed application form (below)
- a copy of the abstract being presented
- a copy of the completed meeting registration form
- **proof of registration, travel and any other costs claimed**

(See additional comments at foot of page)

**Applications should be sent to:**

Ewald Hettema
Dept. of Molecular Biology and Biotechnology
University of Sheffield
Firth Court, Western Bank, Sheffield S10 2TN

## Application for Honor Fell/Company of Biologists Travel Award

**Please complete, print out and send to Ewald Hettema at the address above together with supporting information**

Full name and 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:

**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.

**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:

**Applicant's Signature:**

**Name:**

§ > 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.

*Have you included all the necessary information/documentation in support of your application?*

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# BSCB Ambassadors

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.

| City/ Institute | Ambassador | Contact |
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The BSCB newsletter is published twice a year.

**Submission**
If you have an idea for an article please e-mail the editor a brief outline first.

It is preferable to send all articles, reports and images by e-mail (though alternatives can be arranged after contacting the editor).

Attachments for text can be in txt, rtf or doc format. Please send images as 300dpi JPEG, TIFF or PSD files.

Submission of articles and images should be made to

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**Journals**
BSCB members are entitled to a range of discounts from journal and book publishers. These are correct at the time of going to press but members should check www.bscb.org for the latest information.

Offers include a 25% discount from the individual subscription rate to all journals published by the Company of Biologists, and other discounts from other publishers. To take advantage of this offer, quote your BSCB membership number when ordering your subscription.

Company of Biologists discounted prices:
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The following journals from John Wiley & Sons have discounts of 25–65% (https://secure.interscience.wiley.com/order_forms/bscb.html)

| Journal | BSCB rate | Standard rate |
|---|---|---|
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| *BioEssays* | $99 | $160 |
| *Cell Motility and the Cytoskeleton* | $150 | $425 |
| *Developmental Dynamics* | $125 | $165 |
| *Genesis* | $60 | $99 |
| *Journal of Cellular Biochemistry* | $350 | * |
| *Journal of Morphology* | $175 | * |
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* No standard individual rate available; only available to institutions
NB: The price for the Journal of Morphology is now $175. If there are any members who have ordered the journal at the $150 rate, those orders will be honored.

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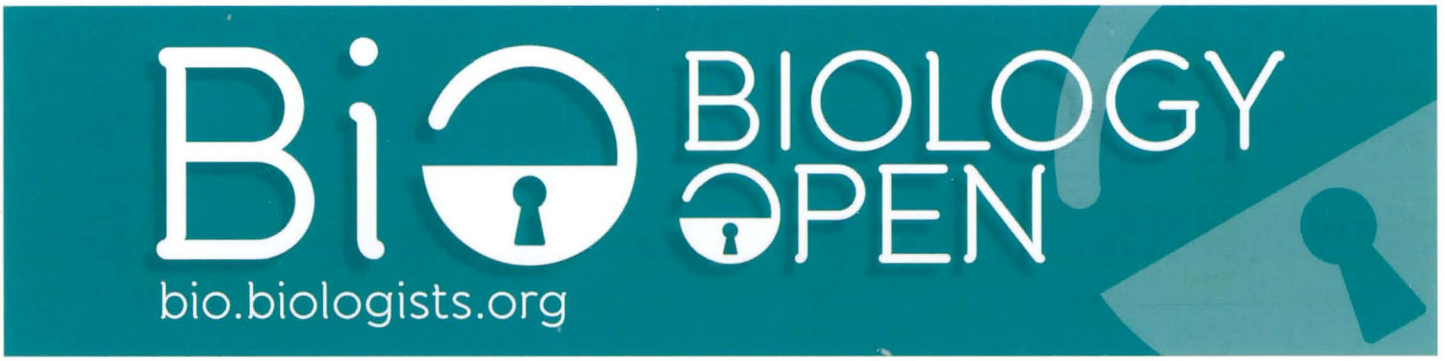
# The Company of Biologists announces its new journal...

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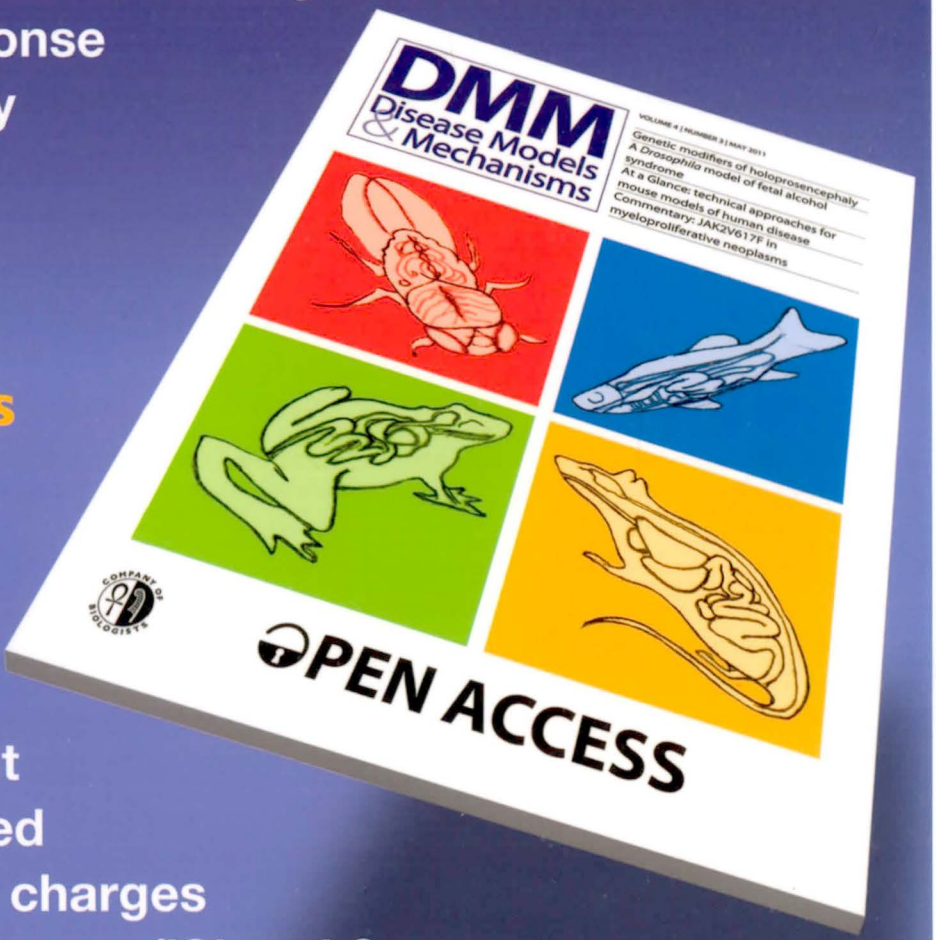


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