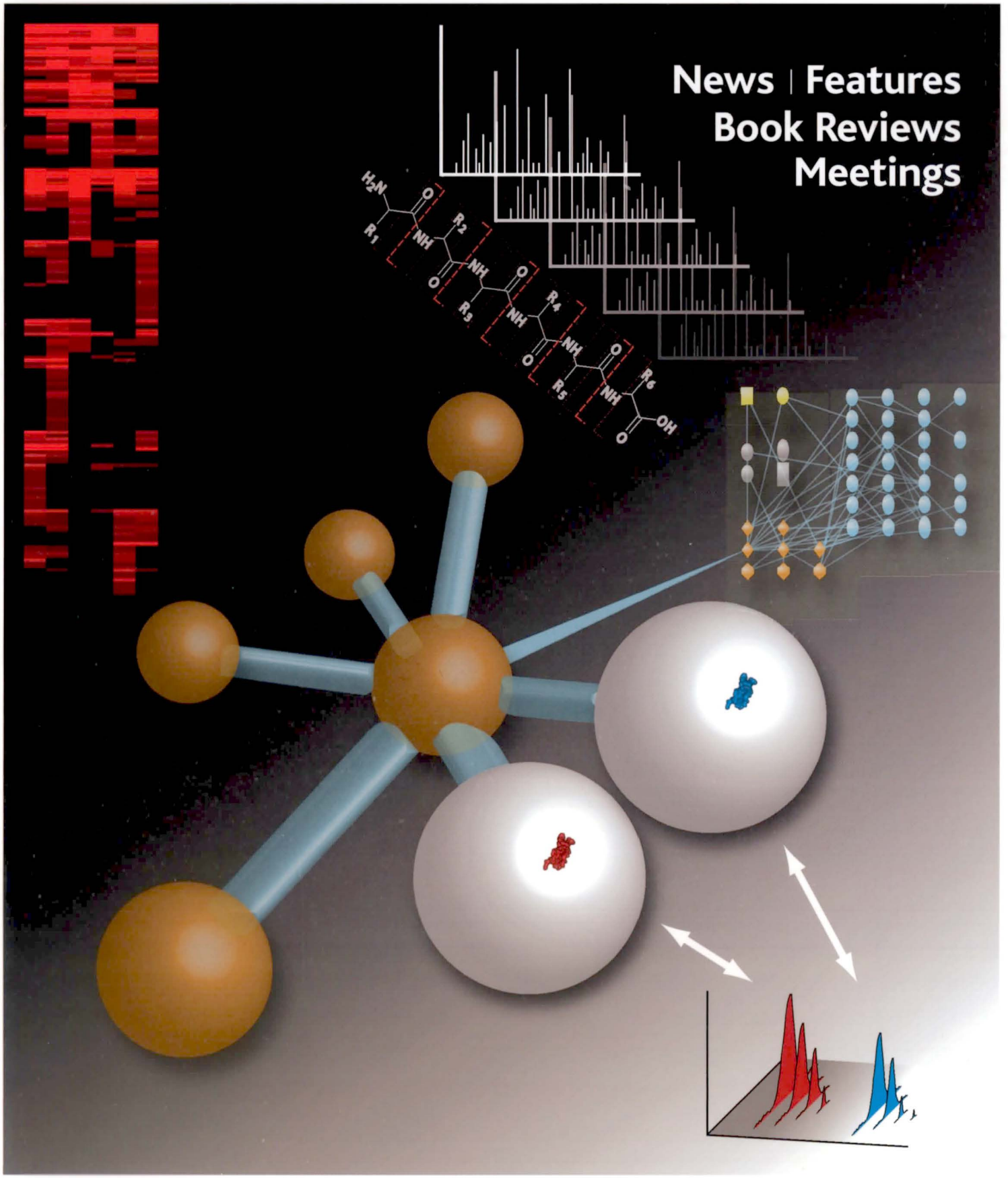
AUTUMN 2009

BSCB Newsletter

BRITISH SOCIETY FOR CELL BIOLOGY



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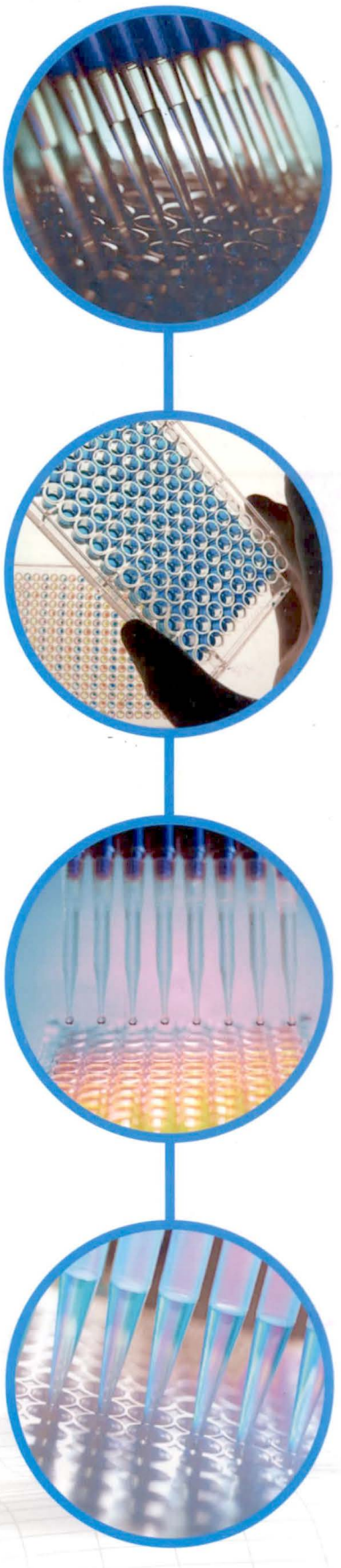

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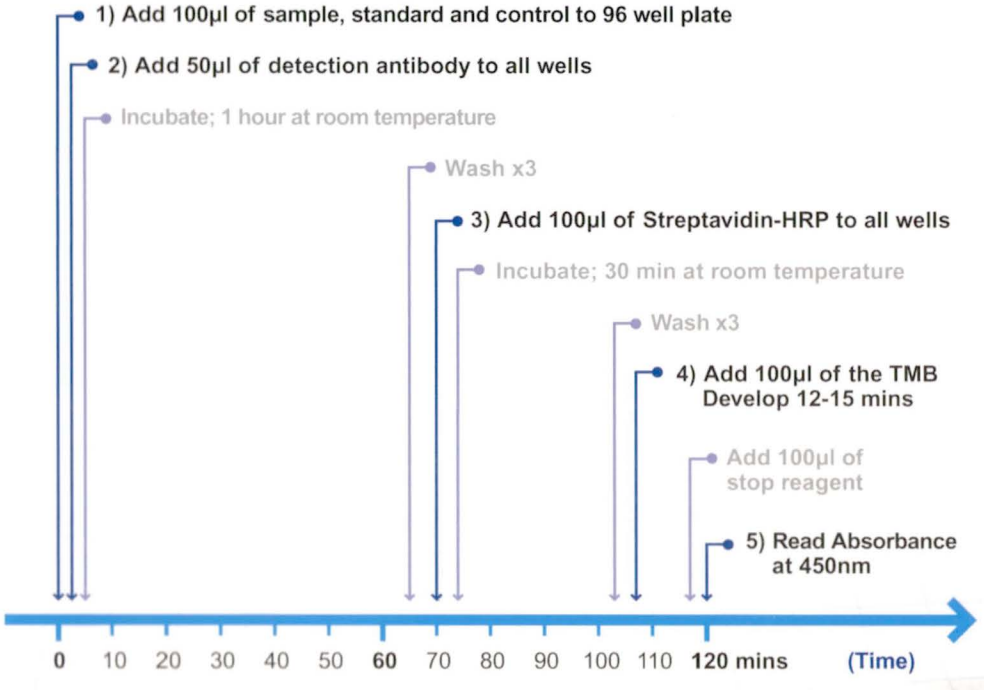

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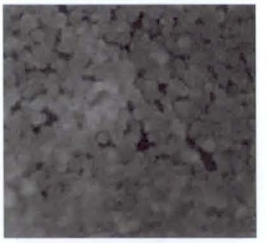
CONTENTS



Editorial

Welcome to the Autumn 2009 edition of the BSCB newsletter. In this issue we include some very interesting features as well as some key offers for current and prospective members.

In the month of October 2009 only we are again running our half-price membership offer; we very much hope that existing members will encourage new students and postdocs in particular to join the society and contribute to the UK cell biology community.

We are able to include some fascinating articles on broader topics within this newsletter as well, notably concerning the communication of science and a new centre aimed squarely at communicating science widely, The Centre of the Cell.

Along with a packed section of meeting reports you can also find articles on the 2009 Spring Meeting from our PhD student representative Veronika Ganeva, and some early information on the 2010 Spring Meeting which will be held at the University of Warwick. A summary of the society accounts are also included here but if any member wishes to view the entire accounts for the society then they may do so via the Charities Commission website (Registered Charity number 265816).

As usual, I encourage you all to engage with your society; suggestions for articles, nominations for committee members or suggestions for the Hooke medal, contributions of possible cover art, and any other feedback relating to the newsletter or BSCB in general are welcome.

The Editor: David Stephens
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The cover is an image representing the theme of the Keystone Symposium: Omics Meets Cell Biology attended by Adam Byron (Wellcome Trust Centre for Cell-Matrix Research, University of Manchester). You can read Adam's report on this meeting on page 17 of this issue of the newsletter.

Newsletter editor: David Stephens **Production:** Giles Newton **Website:** www.bscb.org **Printer:** Hobbs

News

The Hooke Medal 2009 presentation

The 2009 Hooke Medal was awarded to **Erik Sahai** at the BSCB Spring meeting in Edinburgh.

The Hooke Medal is awarded annually by the BSCB to an emerging leader in cell biology with no more than 10 years of independent research, which has largely been conducted within the UK.

Erik started his scientific career as a PhD student at CRUK-London Research Institute and then undertook his postdoctoral training at the Institute of Cancer Research, London and at Albert Einstein College of Medicine, New York. On presenting the Hooke Medal to Erik, Clare Isacke the BSCB President described Erik as a worthy recipient of the award who, despite only being appointed to a team leader position at CRUK-LRI in 2004, had already make a number of seminal contributions to our understanding of tumour cell motility as an independent scientist.

In his Medal lecture, Erik described some of the more recent work from his laboratory using live cell imaging in animals to study the interaction and behaviour of tumour cells *in vivo*. By combining these approaches with the imaging of cells in 3D matrices *in vitro* and more conventional molecular and biochemical techniques, Erik described studies revealing how the heterogeneity of tumour cell behaviour is dependent on position of the cell within the tumour and whether it has contact with stromal components.

He then went on to demonstrate how the mechanism of cell migration and differentiation status of the cell can be modulated by its environment as the tumour cells leave the primary sites, invade into the surrounding tissue and then colonise secondary sites. Finally he discussed how these studies have implications when considering therapeutic options for treating disseminated cancer cells. At the end of his talk, Erik not only thanked the people in his lab but also gave credit to his former mentors and supervisors who had supported and encouraged him while establishing his scientific career.

The BSCB invites nominations for next year's Hooke Medal from any member of the society. If you wish to nominate anyone, please contact with Secretary providing a brief supporting statement.

Hooke Medal 2010: Karim Labib

It is with great pleasure that we announce Karim Labib of the Paterson Institute for Cancer Research as the winner of the 2010 Hooke Medal.

Karim carried out his doctoral studies with Paul Nurse in the University of Oxford, studying the regulation of the Cell Cycle. He then spent a year as an EMBO fellow with Sergio Moreno at the University of Salamanca in Spain, before completing further periods of postdoctoral research with Stephen Kearsey in Oxford and John Diffley in London.

Karim joined the Paterson Institute for Cancer Research in 2001, supported in part by a CRUK Senior Cancer Research Fellowship. In 2005, Karim was selected to join the EMBO Young Investigator Programme, and in 2006 he became a Senior Group Leader at the Paterson Institute for Cancer Research.

Karim's group studies how cells preserve genome stability during chromosome replication, together with the mechanisms and regulation of cytokinesis.

Karim will be presented with his medal and deliver his medal lecture at the 2010 Spring Meeting at the University of Warwick.

Committee members

Following a call for new members earlier this year, we are pleased to announce that Kate Nobes (University of Bristol), Patrick Hussey (University of Durham), and Grant Wheeler (University of East Anglia) will be joining the committee in 2010.

The turnover of membership of the committee is such that nominations are always welcome and should be sent to the Secretary, Liz Smythe.

BSCB Science Writing Prize 2010

This autumn, the BSCB will again be running its Science Writing Competition for BSCB members. The BSCB Science Writing Prize is open to all BSCB student and postdoctoral members; please note that membership is a requirement for entry. We will particularly be looking for articles which 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 and concise 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 delighted to announce that the 2009 science writing prize will be judged by writer and broadcaster Vivienne Parry. The deadline for entries is the 16th December 2009.

Entries should be sent to David Stephens (david.stephens@bristol.ac.uk) as electronic files (preferably Word format with any illustrations or images sent separately as TIFF or JPG).

BSCB Summer Studentships

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

Details

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

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

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

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

5. **Full details of the application procedure and the deadline for applications for summer 2010 will be announced on the website at www.bscb.org**. The application should include the applicant's name, contact details, host institution and department, the student's CV, a supporting statement from the student's academic tutor reference, and the project title, with a brief description of the proposed research project in the context of the research of the group. The research project must be on a topic in the broad area of cell biology and must not form part of the student's normal degree work. Projects will be assessed for objective, achievability and opportunity to the student. Students are encouraged to undertake a project at an institution other than the one at which they are studying.

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

7. The successful applicants will be required to submit a short article describing the outcome of the project for the BSCB Newsletter. To be submitted within two months of completion of the project.

The 2009 summer studentships were awarded to Magdalena Stasiulewicz to work with Dr Tom Burdon (Edinburgh), Laura Knight to work with Dawn Coverly (York), Sarah Sabir to work with Andrew Fry (Leicester), Maxim Saini to work with Harry Mellor (Bristol), and Matthew Robson to work with Carl Smythe (Sheffield). Congratulations to these awardees; reports from these students will be published in the Spring 2010 issue of this newsletter.

Half price membership for new members in October 2009

Please encourage your new lab members and colleagues to join the BSCB; this should give them a great incentive to do so!

Schools News

Public Engagement? I tell them personal stories; that's how I engage with the public.

This could well have been a quotation from Humphrey Davey or Michael Faraday or the current Editor of a certain tabloid newspaper. So what was it that enabled scientists like Davey and Faraday to continually attract big audiences to the Royal Institution, and what is it that enables some newspaper columnists to attract and keep their readers?

Quite simply it is the ability to include a 'people factor' in their lectures or newspaper copy, and if the 'people factor' can also be connected with a memorable incident, so much the better. As one tabloid newspaper editor put it: "good stories will contain one or more of three 'people ingredients': politics (and not just party politics), sex, or religion, or better still, all three". James Watson used the 'people factor' many times in his book 'The Double Helix' and this did a great deal to engage people to the terms 'Double Helix' and 'DNA'. Unfortunately including a 'people factor' can upset some people, and this was certainly the case with Watson's 'The Double Helix'.

Some writers of tertiary level Cell Biology text books include boxes or sections that relate to a 'people factor'; Wolfe in his 'Molecular and Cellular Biology' [1993] included the factor in his 'Experimental Process' boxes.

Karp has 'Human Perspective' boxes in his 'Cell and Molecular Biology' (4e 2005) and Cooper and Hausman use 'Molecular Medicine Essays' in 'The Cell, A Molecular Approach' (5e 2009) to link-in the 'people factor'. Some publishers and websites include a photo of the scientist(s) involved, and this assists in connecting scientist to the reader/viewer.

It would seem therefore that for public, and indeed student engagement, one desirable factor is the inclusion of an interesting 'people factor' story or anecdote, and if possible a photo of the person or group involved.

Another important factor in Public Engagement is to ensure that the message is interpreted simply, but without under estimating the intelligence of the audience; not always an easy task, but not impossible. I cannot do better on this aspect than quote the noted historian, Dr David Starkey who said in a recent interview: "I was profoundly influenced by George Orwell: the short sentences, the intense movement between paragraphs. One of the reasons that so much academic writing is so complex, quite honestly, is that either the academics themselves don't understand it, or they don't want any one else to do so. But I take pride that complex ideas can be expressed, not simplistically, but simply. It's not dumbing down; it's the opposite, an act of confidence in your reader. If a historian is doing his job properly, there must be a sense of a conversation, as in a novel."

Our list of ingredients for Public Engagement so far contains (1) a 'people factor' and now (2) the use of simple, concise explanations.

In the education of school pupils it is considered good practice to start from a known, if not personally experienced, situation, and to put what you have to say into a 'big picture' context. In biology this is relatively easy. It is unlikely that there is anyone who has not pondered about their own biology or that of another animal or a plant. Ingredient (3) might therefore be to explain/interpret the particular point in a known context or 'big picture' situation.

These points and others have been incorporated in the preparation and production of a new and advanced website by the Dolan DNA Learning Centre of Cold Spring Harbour Laboratory, (CSHL) USA. The website URL is http://www.g2conline.org and it has taken the web development team of Cold Spring Harbour three years to produce. It is modelled on the http://www.genes2cognition.org site of the Wellcome Sanger Institute, Hixton, UK.

At the start of the programme in 2005, David Micklos, Director of the Dolan DNA Learning Centre, said "Science education and public outreach typically begin well after a 'scientific revolution' has settled down into what Thomas Kuhn called 'normal science' –resulting in a set of facts that can be conveniently categorized and presented as unchanged dogma. In the website www.g2conline.org, rather than presenting science as a completed endeavour, with nothing important left to discover, we want to involve site users in this revolutionary period of neuroscience research. We want them to be online when new insights into human memory and new treatments for cognitive disorders appear on the horizon."

Micklos's statement raises the interesting idea of taking the public with you on your journey of discovery, telling them of the 'lows' as well as the 'highs'. Tell them of working to 2-0.am inspecting 400 or so Petri dishes as well as the thrill of having a paper published. Blogging is probably not really called for, for Public Engagement, there isn't time, but when one has to be transparent with the use of public money, whether from Government or charities, it is important to tell the public 'how it really is' while it is going on rather than when it has gone on' This would assist in showing people how long scientific work really takes, and how many 'hurdles' have to be negotiated in the process.

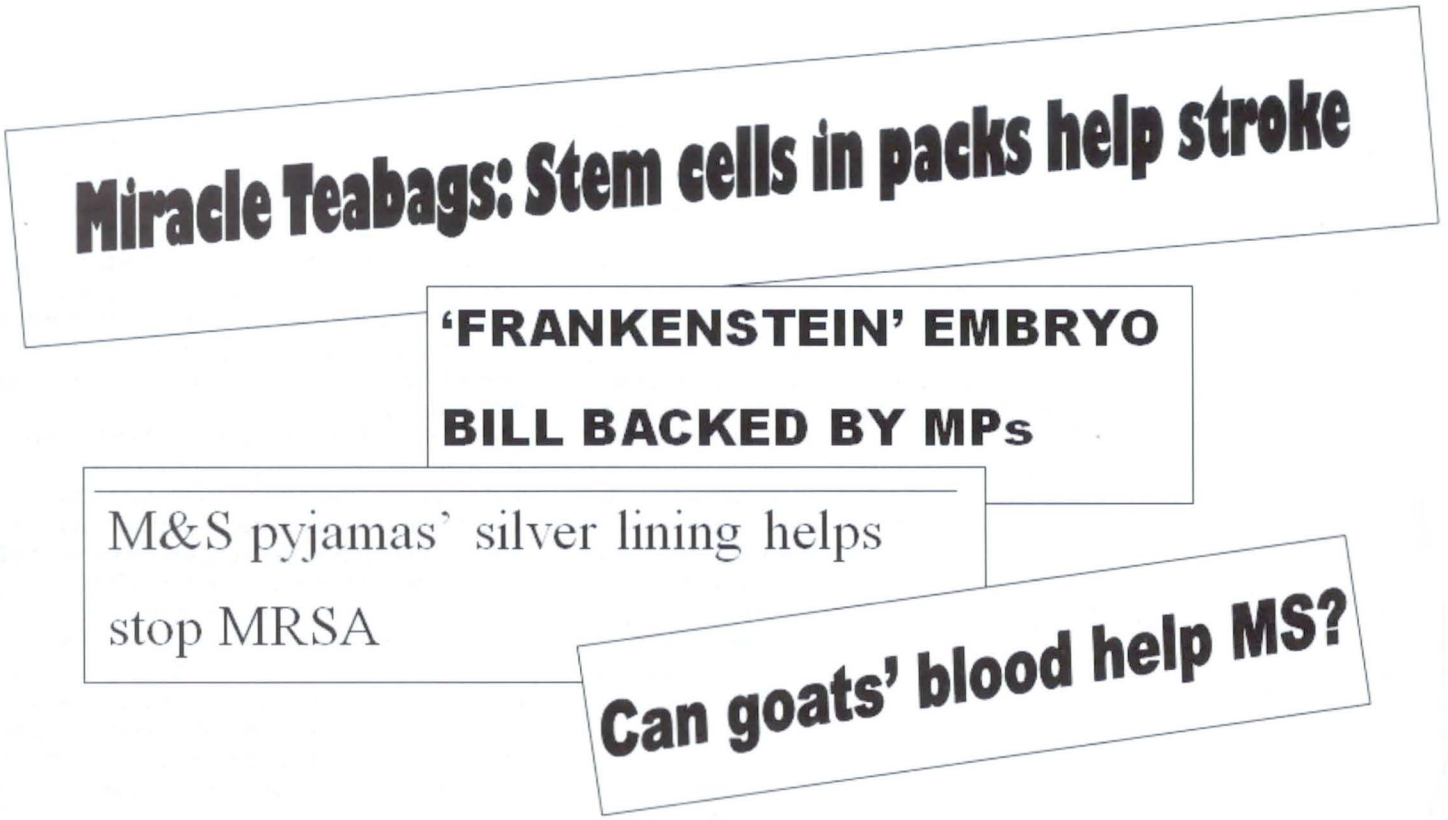
In summary, the use of: (1) the 'people factor', (2) the use of simple, concise explanations, (3) explaining the point in a known context or 'big picture' situation, and (4) 'telling the audience what is going on as well as what has gone on, should be of help in engaging the public and keeping them interested.

David Archer, May 2009

softCELL and CELLpics

The use of our Public Engagement and educational websites softCELL (www.bscb.org) and CELLpics (cellpics.cimr.cam.ac.uk) continues to grow.

Furthermore in January 2009 representatives of the Norwegian Government's National Digital Learning Arena attended a BSCB sponsored workshop and this spawned an Anglo-Norwegian project. Several items from the CELLpics site are being translated into Norwegian, including the popular Somatic Cell Nuclear Transfer (SCNT) chart.



Sense about Science: The Voice of Young Science Programme

Dig into our files at Sense About Science and you will find them full of newspaper cuttings like the ones above; sensational science headlines which frustrate scientists, and more seriously can be confusing and potentially damaging for the general public. Sense About Science frequently receives calls from a wide range of people struggling to make sense of such stories: from midwives worried about chemicals in baby bottles, to local education authorities responding to concerns about WiFi in schools.

In the UK it has been acknowledged that scientists should play a more prominent role in public discussions about science and as a result there is increasing pressure on them to engage with the public about their subject area. This can be a daunting task, particularly if it is first necessary to tackle and set straight previous misinformation, and as a result is a responsibility which often falls to more senior scientists. Most early career scientists feel passionate about their research and are frustrated by the misrepresentation of science, but many are unsure of the role that they should play in these debates or question whether anyone would want to listen to them.

Six years ago, in response to these concerns, Sense About Science set up the Voice of Young Science (VoYS) programme, specifically designed to enable and encourage early career scientists to get involved in public debates about science. Initially this started with a series of media workshops to hear directly from scientists and journalists about how they each contribute to the process of talking about science, about the pros and cons of how they interact, the pressures they each face and about how their relationships with each other are changing.

One of the most important features of these workshops turned out to be the support that was gained from sharing tips and advice with fellow researchers, and discovering that they too had similar concerns about getting involved with the media, and discussing their work. These early meetings rapidly developed into a network of over 400 early career scientists, engineers and medics who regularly share ideas and have all taken on responsibility for responding to misinformation in the public.

Most recently VoYS has taken on the role of myth busting and promoting the need for evidence. This first

started in October 2007, when, fed up with seeing adverts for yoghurts that "optimise the release of energy from our diet" and pendants that protect you against electromagnetic radiation by acting "as a master tuning fork...to balance your biofield", a group of us decided it was time to contact the companies involved and ask them to provide evidence for their claims.

We were genuinely surprised that, while company representatives were very happy to try and answer our questions, not one was able to give us any evidence to support their product claims or to put us in touch with anyone who could. The intention of calling was never to try and test the customer services representatives, and in all cases we tried to be put in touch with a scientist, or to find out whether there were any relevant research papers that the company could provide. What was most shocking was that none of the companies had anticipated that they would be questioned in this way.

Sense About Science is a charity that equips people to make sense of science and evidence

We found that products tended to fall into two distinct groups: those which had no plausible science to explain how they worked – such as the Q link pendant that claimed to "protect you from the effects of electromagnetic radiation"; and the trend for 'chemical free' products, to create the impression that the chemicals had something wrong with them.

Some of the products we investigated probably sound harmless, in which case what does it matter if people choose to believe the pseudoscientific claims about how they work? Why shouldn't companies relabel some chemicals as 'obscure' or encourage people to buy sprays to protect them from radiation from computers? We think it matters because these claims are misleading. They either dress a product up in science to make it sound plausible, or embellish the effects certain chemicals may have on their health. This not only denigrates science and its achievements, but also has an impact on people's decisions on other serious matters like their family's health. People have a right to know when claims made by commercial producers and retailers are empty and not actually based on scientific evidence despite being dressed up in 'sciencey' words. For example, when the manufacturers of a software programme alleged that you could "use your PC to release over 34,000 different homeopathic remedies into you" they claimed to have sold over 340,000 copies; as Tom Sheldon, who investigated the product said: "that's over £13 million spent on a product with no supporting evidence, no working theory, and no conceivable mode of action."

VoYS published the contents of their investigation for evidence in a dossier, There Goes the Science Bit... which was picked up by media both nationally and internationally. Raising public awareness that some product claims lack evidence encourages people to ask questions and be sceptical. It also puts pressure on companies and demonstrates that there is an expectation for them to be able to produce evidence and be held accountable for their products. Since the project was launched we have been overwhelmed with enquires from people concerned about products that they have come across or telling us about their own investigations.

One tendency the project particularly emphasised was the misuse of scientific terminology in advertising. Ever since Jennifer Aniston uttered the immortal line "Here comes the science bit", companies have realised science can be sexy and as a result product literature is now littered with buzz words such as 'nano', 'quantum', or 'clinically proven'. We were particularly surprised to see the word 'detox' sprinkled across all manner of products from shampoos to special tonics. When we looked into this further we found mainstream pharmacies and supermarkets with shelves full of products claiming that toxins have built up in your body and need to be cleansed from it or that harmful toxins can be drawn out through your skin.

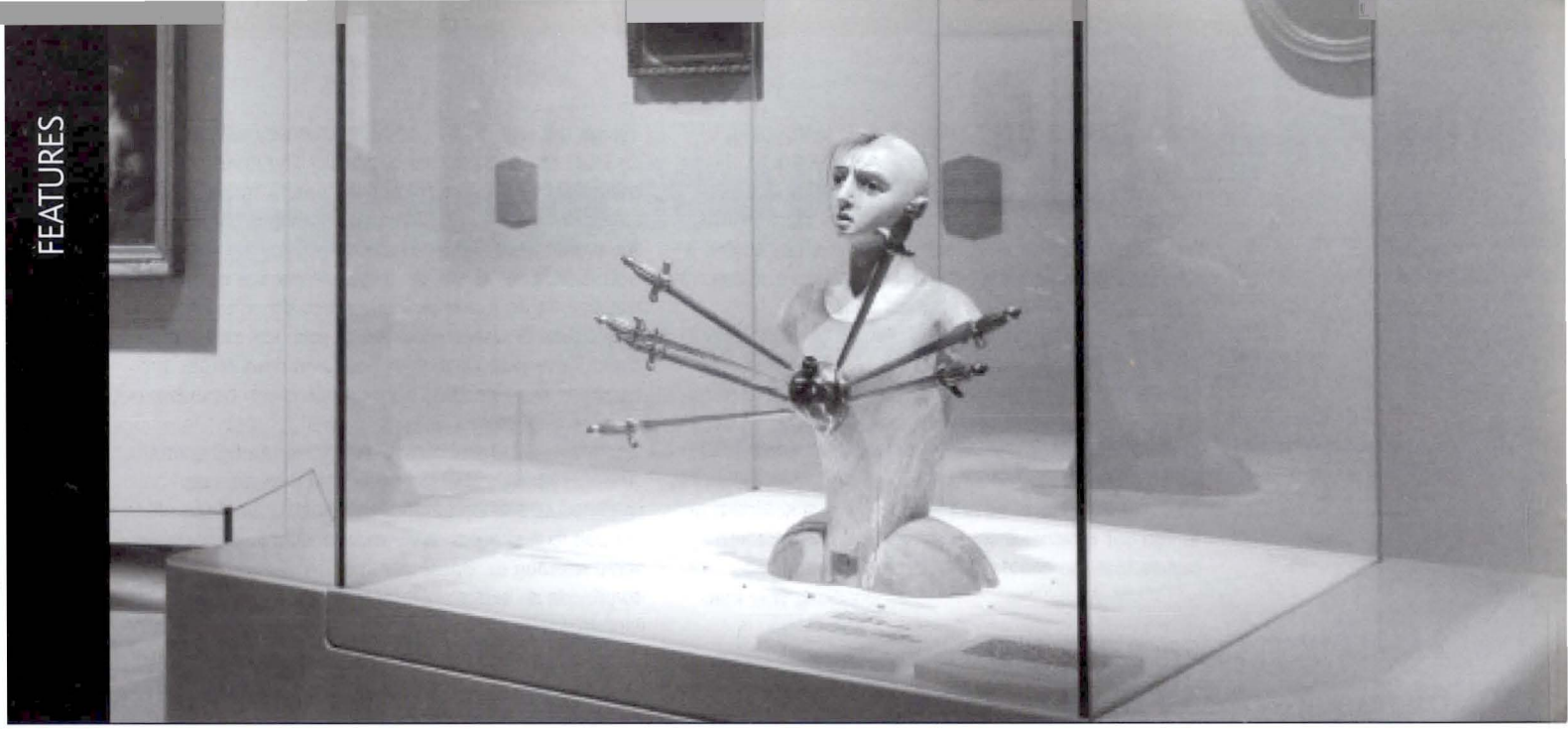
We all agreed that 'detox' being used to sell anything and everything from tea to hair straighteners was implausible and decided further investigation was needed to find out exactly what product manufacturers were referring to. Once again companies were contacted to provide an explanation for their 'detox' products. Unfortunately no one that was contacted was able to provide any evidence for their claims, or even give a comprehensive definition of what they meant by 'detox'. We concluded from this that 'detox', as used in product marketing, is a myth and worryingly many of the claims about how the body works were wrong and in some cases the suggested remedies were potentially dangerous.

We responded by compiling an 'anti detox' leaflet explaining how the body is perfectly capable of dealing with most chemicals we encounter. Some of the VoYS network even took to the streets to distribute the leaflet outside chemists, to explain that the best thing to do after an indulgent Christmas is to get a good night's sleep and have a glass of water. This ongoing campaign has been highlighted by a range of media, from local radio to international broadsheets, creating a public debate about why 'detox' products don't work. In a short time the campaign has made tremendous ground; one of the investigators even overheard the media coverage of 'detox' being enthusiastically discussed in a coffee shop!

As the next generation of scientists it is vital that we take responsibility for correcting misinformation when we see it. I often hear early career scientists concerned that they are not enough of an expert to speak out on issues but you don't need to be an expert to ask where the evidence is, or to investigate a dodgy claim. Ultimately no matter who you are, what your background is or how much experience you have, there are always things you can do to raise the standard of science. The important thing is that we acknowledge this responsibility and next time we see a dubious advert, or unfounded claim, we take action because if we don't there is no guarantee someone else will.

VoYS' latest project has involved calling on the World Health Organisation (WHO) to condemn the promotion of homeopathy to treat HIV, TB, malaria, influenza and infant diarrhoea in developing countries. This project is in direct response to the increasing promotion of the use of homeopathy as an alternative to scientifically proven medicines for these diseases, a practice which at worst could result in many unnecessary deaths. As such we have reached out to medics working in Africa to make a combined statement on this issue and are currently working with journalists to get a response from the WHO.

If you want to get involved in this project, to find out more about VoYS, or to get a copy of VoYS publications please visit www.senseaboutscience.org or contact Julia on jwilson@senseaboutscience.org



The meaning of science communication

As Director of the science communication group at Imperial College London, I consider public discussion of science an important part of a scientist's work. But I think it is important to be honest about the problems. In this article I want to examine a conflict that runs – pretty silently – through our science institutions. The conflict is this. On the one hand our universities see public advocacy of their research science as essential, and call on their staff to join the communication effort. On the other, every scientist knows that the bottom line for a successful career is publication output in high impact journals. Successful research science requires steady and severe commitment, and countless hours tethered in the same space – a laboratory or a computer workstation.

While successful science communication also requires commitment and thought, it requires attributes possibly tangential to the science research process. Sudden deadlines from journalists; time spent traveling to a school; re-working ways of explaining your research for a variety of audiences; responding properly to lay attitudes to science – there is no one method or set of rules for doing these things. You have to be unprotective of your time, prepared to be inefficient, and resigned to 'a lack of clear results'. Ask yourself: how welcome are such working methods in your own laboratory, or in your institution?

There is a conflict, then, between the explicit professional culture of science ("publish well, and publish often"), and a more hazy, implicit message ("go, communicate with the people, be open and honest with your work)". Institutions need to be honest about that conflict, rather than simply expecting individuals to sort it out for themselves. But, to resolve the conflict, a rather important debate needs to take place. We have to discuss what we mean by the 'well-trained scientist'. In particular, can a scientist who is deeply interested in science communication, and in teaching, practice these crafts without impeding his or her career? Or, like in the old days, do you have to be an end-of-career professor to make the risk acceptable?

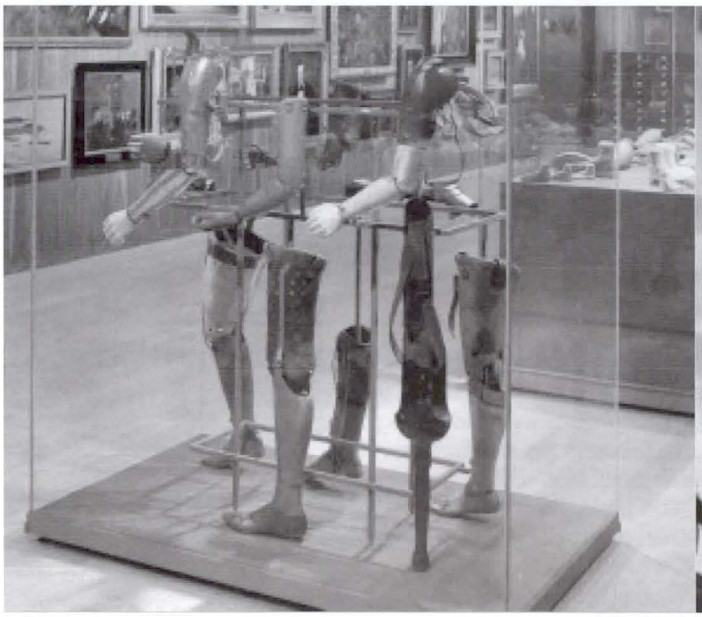
It is a feature of modern research culture that the communication of science has become a priority. Whereas the 'popularization' of science was really the province of eminent professors (one thinks of Peter Medawar, Jacob Bronowski and David Bellamy), now the field has become much more open. Every young scientist and most middle-career ones too, wonder these days whether they should be dipping their toes into the strange shoreline where science and the public meet.

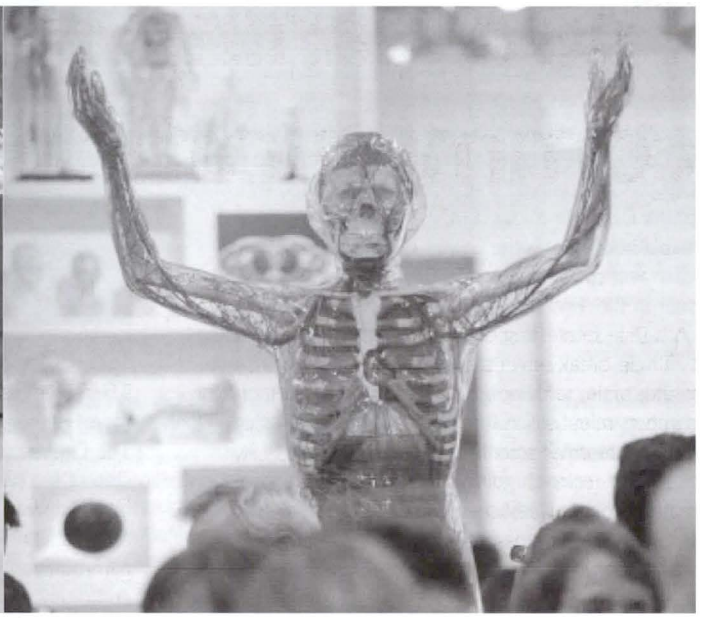
Whatever the difficulties there has been an astonishing growth in public communication activity over the last ten years. A powerful symbol of this is the Wellcome Trust. The Trust spends £480 million a year on science research. But one of its six strategic aims is to "engage with society to foster an informed climate within which biomedical research can flourish". The new Wellcome Collection centre, situated right next door to the charity's HQ is a kind of cathedral of science communication, an emblem of the significant funding structures the Trust orchestrates for scientists who want

to engage with the public. The Trust is trying hard to develop a culture where scientists who want to apply their mind to science communication can find institutional support. Recently the Trust, working with Research Councils UK, set up six Beacons for Public Engagement. These are constellations of universities that receive funding to discuss their work in a public forum. The Beacon at University College London is typically ambitious: "plans include tailored training courses designed to empower staff and students to be part of the ongoing dialogue between researchers and the public, and the use of space on main routes of their campus for public activities, tours and installations".

An interesting experiment is about to begin. Financial uncertainties have left the horizon, and are galloping towards us. As the Beacons demonstrate, science communication has been able to grow because science funders have developed a sense that the activity is important. Will the commitment survive a harder scrutiny of science's finances?

In my view science communication might prove robust in the new era. Firstly, assuming the UK government continues to sharpen its interest in science policy, it will emphasize the economic importance of research.





Above: Images from Wellcome Collection. Credits (left to right): Wellcome Library; Rama Knight; Adrian Brooks

Decisions about energy generation and climate change, about food production and the environment, and about health and genomics, will require university expertise. They will also require expertise in communication, because all these areas are controversial. Science committees sitting in Whitehall know they have to listen as well as pontificate.

Secondly, young scientists are familiar with science communication in a way that their elders are not. They can be confident about the value of science, and able to discuss it honestly, without resorting to paternalism. It is the young scientists who will demand that the ambivalence I mention above is resolved, or at least discussed openly. They will want to know that they can be communicators, and celebrated for making the effort.

Thirdly, the very philosophy of science communication has changed. When the field was first defined 30 years ago, the simple idea what that the public needed to have explained to them, slowly and clearly, the facts of science. Knowing the science, they'd learn to love it. This might be true with cosmology or quantum mechanics, but it didn't turn out that way with mad cow disease, when the UK government had to change its advice on whether beef was safe to eat. And it hasn't turned out like that for GM foods, which in the UK are stubbornly resisted by consumers.

These hiccups have led to a model of science engagement that takes seriously, and doesn't patronize, public attitudes. If the science the public hears about, and is asked about, is controversial and uncertain, then forcing that science into a series of factual sound bites won't work. Besides, it turns out that the public are not ignorant and in need of factual feeding. Any patient group will assist a GP in specialist knowledge, and any neighborhood group can tell an engineer where to place her pollution sensors. The new model of science communication – and Government has taken this on board – sees the public, or rather 'the publics' as 'co-experts' in the scientific exercise. So we need science communicators not just as explainers, but as mediators.

My optimism about this comes from teaching the science communication masters at Imperial College. Each year about 50 or so science graduates come on our courses, learning skills ranging from TV and radio production to getting a grounding in the history and philosophy of science. These students seem to me as central to science as the most specialist researcher. They tell me that they love science, but do not wish to be academics. They want to discuss science. And they are unstoppable. Moreover, these students are the products of science education system that is beginning to see discussion as an important part of the scientific toolkit. Science communication, we can conclude, is becoming a home-grown enterprise, and its home is science.

Dr Stephen Webster is Director of the Science Communication Group at Imperial College.

www.wellcome.ac.uk/Funding/Public-engagement/index.htm
www.rcuk.ac.uk/sis/beacons.htm
www.imperial.ac.uk/sciencecommunication

Centre of the Cell

A novel approach to public engagement with biomedical research?

Our approach to public engagement with biomedical research is to build a science centre for young people in the middle of one our research buildings. Centre of the Cell was integral to the design of the Blizard Institute of Barts and The London Medical School at Queen Mary University of London; indeed the original idea of building an exhibition space at the heart of the laboratory came from the Blizard Director, Professor Mike Curtis. When Centre of the Cell opens in June 2009, over 30,000 young people per year will be able to visit our futuristic orange cell-shaped 'Pod' suspended within an award-winning glass building.

There are a number of advantages to bringing the public to the scientists rather than sending scientists out to the public – it saves time, ensures that good resources are always available and breaks down stereotypes. Centre of the Cell gives us a custom-made, interactive environment in which junior and senior researchers can efficiently discuss and debate their research with young people – and most of the scientists will only have to climb a short flight of stairs to do so. Our postgraduate scientists are being trained by Centre of the Cell staff and STEMNET to act as volunteer 'explainers' during the Centre of the Cell experience – each will spend one or two days (or possibly more!) a year in the 'Pod'. Our volunteer explainers will not only engage in interesting dialogue but their very presence will help break down the stereotype of scientists as white, male, middle aged – and mad. In addition to meeting scientists in the 'Pod' – visitors will actually look down onto other scientists at work before they learn about the research going on below them via film shows, state-of-the-art interactive games and top-of-the-range microscopes – made into interactive games. We can reach so many more young people by bringing them to us.

And equally important to all of the above, we have found that putting the science centre for the public at the heart of a research building is generating an ethos of enthusiastic communication that permeates throughout our medical school and university. The project also acts as a catalyst for further initiatives in public engagement. For instance, in response to requests from teachers, we are already running a series of 'Meet the scientist' Continuing Professional Development events – first bringing in science teachers but, after a further suggestion, including AS level students as well. There were about 20 participants for the first of these, but the twelfth attracted over 100.

A critical factor in all of this, and indeed, I believe, any sort of outreach/public engagement involving research scientists, is dedicated full-time professional science communicators working alongside the scientists. Most scientists do not have the time or experience to ensure optimal performance when faced with non-scientists – they need support and guidance. With help from to the Centre of the Cell team, over eighty of our scientists and clinicians have provided expert content,

150 pages of which is already available (alongside some 15 interactive games, teachers resources and much more) on our popular website www.centreofthecell.org. The Centre of the Cell team has also evaluated every step of the project in our local schools – so far they have involved over 8000 pupils – and they are training our scientists and undergraduates best practice in science communication. Time will tell if our model for science communication and public engagement with research is successful but we dream that one day you will find Centre of the Cell 'clones' in biomedical research buildings around the world.

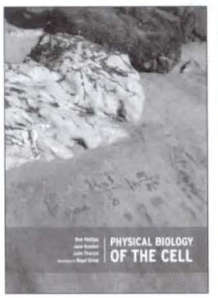
For a free visit Centre of the Cell, log on to our website or contact kat.sandford@qmul.ac.uk

Frances Balkwill OBE FMedSci
Director, Centre of the Cell & Centre Lead, Centre for Cancer and Inflammation
Institute of Cancer, Barts and the London School of Medicine and Dentistry, Queen Mary University of London.
Email: f.balkwill@qmul.ac.uk

Book Reviews

Physical Biology of the Cell

ROB PHILLIPS, JANE KONDEV, AND JULIE THERIOT, ILLUSTRATED BY NIGEL ORME.



Physical Biology of the Cell
Garland Science, 2009
ISBN 978-0-8153-4163-5

This book sets out to provide an appropriate introduction to Physical Biology to undergraduate and graduate students taking a first course in this area but is also likely to be valuable to more experienced researchers wishing to learn (or even revisit) the basic principles of biophysics and applying physical modelling to their own work. It is also highly likely that this book would be of use to those from a physics or mathematics background looking to develop their work towards quantitative analysis of biological problems. As such, this volume achieves its goals admirably.

As someone who has used the same publishers' *Molecular Biology of the Cell* (*MBoC*) constantly over many years, I found this new volume a wonderful addition to the bookshelf. It is divided in to logical sections that lead the reader through some basic concepts initially with accessible subject headings such as "The Springiness of Stuff" culminating in a chapter dealing with "Network Organization". The final chapter also provides something of a perspective on the future of this topic and does very well to really reinforce the importance of quantitative analysis of biological processes. The book is very well illustrated throughout (and many of the diagrams will be familiar to readers of *MBoC*) but perhaps the most significant drawback is the limitation of greyscale images throughout. One impressive aspect of other related texts is the appropriate use of colour to guide the reader through a complex figure. That is clearly an avenue that could be explored for future editions.

While this book clearly sets out to direct readers towards the development and application of quantitative models (very popular in this age of 'systems' biology) it does this from a viewpoint of experimental biophysics. The sections on cytoskeletal polymerization illustrate this well with a clear definition of the physical parameters governing cytoskeletal filament assembly and disassembly, discussing control of polymer length, the role of nucleotide hydrolysis and end-capping. These are all dealt with in considerable detail in volumes such as *MBoC* from a very molecule-based stand-point, here the discussion is centred on the biophysical rules governing these important processes. The experimental focus is reinforced by the use of problems at the end of each chapter. These often involve primary data from key publications, and lead the reader towards the development of clear models to describe this work. This is not global systems modelling but more refined towards data analysis and providing an appropriate description of experimental results and of course allows one to develop predictions of behaviour. While "Systems Biology" means many things to many people, this text drives home the concept of applying models as a component of a research programme throughout. It does an excellent job of reinforcing the importance of relatively simple kinetic models of the type that biophysicists have been using for decades. Further student and instructor resources are available online including PowerPoint® slides for all figures, hints for some of the more complex problems, supplementary data sets and videos. A solutions manual is also available for instructors on request.

This book is an excellent companion to *MBoC*. I would thoroughly recommend it to anyone interested in investigating or applying biophysical methods to their work. It is likely to be a fantastic teaching resource and is a welcome addition in this age of increasingly interdisciplinary science.

David Stephens, University of Bristol.

New editions of established Cell Biology textbooks

New editions of three well known tertiary level textbooks have been launched.

Cooper and Hausman's **The Cell, A Molecular Approach** is presented in a 5th edition and published by Sinauer Associates (Palgrave Macmillan, in UK). The volume is currently in hardback, ISBN 978-0-87893-300-6.

As well as general updates, the fifth edition includes new coverage in seven areas, including: Histones and epigenetic inheritance; Genetic analysis of mutations in human cancers; Protein import into mitochondria; Induced pluripotent cells; and the role of autophagy in programmed cell death. It also includes three new Key Experiments including one on Odour Detection [perfume not included].

With the fifth edition, the publishers have made the volume available (at least in the USA) as an online interactive eBook at "a substantial discount off the price of the printed version" (see www.sinauer.com/ebooks). A CourseSmart eBook is also available (www.coursesmart.com). Also new are Course Management System Support e-packs and Course Cartridges. This book is not currently widely used for courses in the UK but is well worth looking at. I still treasure my copy of the single authored first edition of 'Cooper'; I like the flow of his personal writing style.

The other two arrivals are 'Essential' editions of longer established publications. From Garland Science comes the third edition of '**Essential Cell Biology**' by Bruce Alberts and seven other authors ISBN: 978-0-8153-4130-7 (p/bk). A hardback version is also available; and from Jones and Bartlett Publishers comes a second edition of '**Essential Genes**' authored by Benjamin Lewin and three colleagues ISBN-13: 9780763774103 (p/bk).

Essential Cell Biology 3e has received a thorough overhaul and update and now includes the integration of the cell cycle and cell division into a single chapter, an improved treatment of thermodynamics and energetics, and the addition of a multimedia quizzing facility. There is a greater focus on regulation, including material on epigenetics and post-transcriptional control and on disease medicine. There is new treatment of the topic 'genome evolution and comparative genomics' and 'recombinant DNA' together with new "How We Know" features. These are all very sound and useful changes to a book that is probably the cell biology book most stocked, in quantity, in university bookshops in the UK.

Essential Genes 2e, like the first edition, is comprised of 30 chapters but many have been re-arranged to form a book of five parts instead of six. In this edition, Benjamin Lewin is joined by three co-authors, Jocelyn Krebs, Elliott Goldstein and Stephen Kilpatrick. This book too is available as an eBook in the USA.

The main additions to this book from the information point of view include updates and expansions of the sections on chromatin remodelling, epigenetics, the RNA world and RNAi. To help the reader, four categories of Topic Boxes have be added, these cover: Essential Ideas, Medical Applications, Historical Perspectives and Methods and Techniques. In Genes IX, 'Key Concepts' boxes were placed near the start of the chapter. In Essential Genes 2e they are located at the chapter end but not strictly in a box and above a newly introduced section labelled 'Concept and Reasoning Check'

The cover price for the paperback version is £38.99. BSCB Members can obtain the book at discount through the Society website.

New Oxford Dictionary for Scientific Writers and Editors: The essential A-Z style guide for scientists

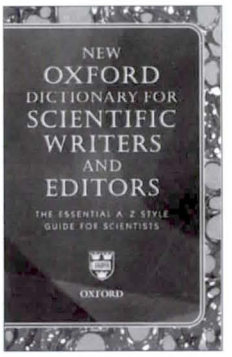
Edited by JOHN DAINTITH AND ELIZABETH MARTIN

This dictionary is a rebranded second edition of the 1991 edition of The Oxford Dictionary for Scientific Writers and Editors. In addition to the expected dictionary style list of scientific terms and abbreviations it contains short sections on topics such as gene nomenclature and appendices on topics ranging from the use of mathematical symbols to the key differences between British and American spelling. The utility of this book is exemplified by the way it reflects common usage and maintains the recommendations of major bodies such as the International Union of Pure and Applied Chemistry (IUPAC).

Covering all aspects of the sciences from biology to engineering in less than 450 pages does mean that it is a very general resource which users could find lacking in their own discipline. Indeed, it is perhaps questionable whether this volume really provides a useful resource beyond what one can find on the Internet; this may depend on accessibility to various authoritative online resources.

Overall, this is probably not of great use to the majority of casual writers (by which I mean those students and postdoc writing the odd paper or grant application). I could imagine that it would provide significant benefit to those writing professionally and also to the increasing number of commentators, bloggers, and tweeters who wish to maintain the same standards as more traditional writers. Consistency, accuracy, and attention to detail are key elements for scientific writers and editors. This is one of the best ways to ensure that an accurate message is delivered in any written piece. This dictionary therefore provides a useful ally on the bookshelf to grammar, punctuation, and style guides that are widely available.

David Stephens, University of Bristol



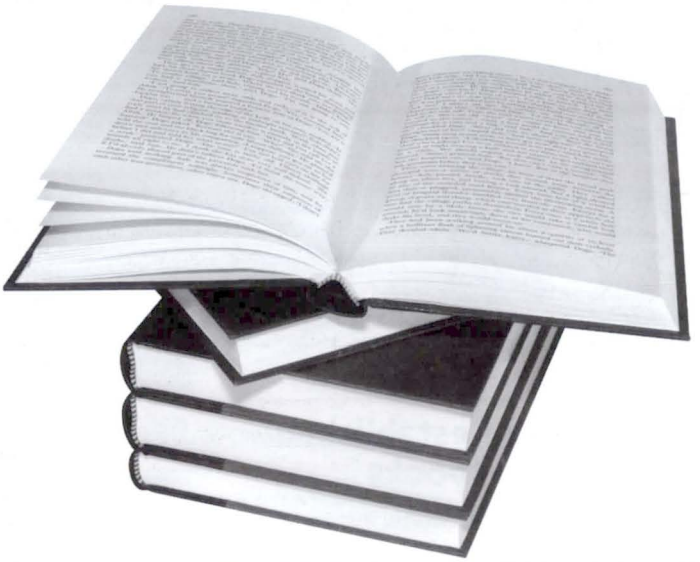
New Oxford Dictionary for Scientific Writers and Editors
Ed. John Daintith and Elizabeth Martin, 2009
Oxford University Press
ISBN 978019-954515-5
£19.99

Books for review

Below is a list of books for review, please do email the newsletter editor is you would like to review any of these. Reviewers get to keep the review copy free of charge. Most major publishers will offer books for review purposes; please do get in touch if there are any new texts that you would like to review for the newsletter.

UK and rest of Europe: contact the newsletter editor
USA: contact Richard A. Stein, 320 Lewis Thomas Lab, Department of Molecular Biology, Princeton University, Princeton, NJ 08544, USA. E-mail: ras2@princeton.edu

We are currently seeking someone to act as book reviews editor in the UK, if you are a BSCB member and interested in this role then please contact the newsletter editor.



Chemoprevention of Cancer and DNA Damage by Dietary Factors
Siegfried Knasmüller (Editor), David M. DeMarini (Editor), Ian Johnson (Editor), Clarissa Gerhäuser (Editor)
ISBN: 978-3-527-32058-5
March 2009

Annelids in Modern Biology
Daniel H. Shain
ISBN: 978-0-470-34421-7
April 2009, Wiley-Blackwell

Advanced Techniques in Diagnostic Cellular Pathology
Mary Hannon-Fletcher (Editor), Perry Maxwell (Editor)
ISBN: 978-0-470-51597-6
April 2009

Structure and Function in Cell Signalling
John Nelson
ISBN: 978-0-470-02551-2
July 2008

Acetylsalicylic Acid
Karsten Schrör
ISBN: 978-3-527-32109-4
November 2008

The Septins
Peter A. Hall (Editor), S. E. Hilary Russell (Editor), John R. Pringle (Editor)
ISBN: 978-0-470-51969-1
November 2008

Nuclear Receptors in Drug Metabolism
Wen Xie (Editor)
ISBN: 978-0-470-08679-7
November 2008

Anticancer Therapeutics
Sotiris Missailidis
ISBN: 978-0-470-72303-6
November 2008

Neural Signaling: Opportunities for Novel Diagnostic Approaches and Therapies
Edward J. Goetzl (Editor)
ISBN: 978-1-57331-704-7
January 2009, Wiley-Blackwell

Hereditary Tumors: From Genes to Clinical Consequences
Heike Allgayer (Editor), Helga Rehder (Editor), Simone Fulda (Editor)
ISBN: 978-3-527-32028-8
December 2008

Photosynthetic Protein Complexes: A Structural Approach
Petra Fromme (Editor)
ISBN: 978-3-527-31730-1
August 2008

Probes and Tags to Study Biomolecular Function: for Proteins, RNA, and Membranes
Lawrence W. Miller (Editor)
ISBN: 978-3-527-31566-6
July 2008

Structure and Function in Cell Signalling
John Nelson
ISBN: 978-0-470-02550-5
July 2008

Physical Biochemistry: Principles and Applications, 2nd Edition
by David Sheehan
ISBN 978-0-470-85603-1
Wiley

Single Cell Analysis: Technologies and Applications
Dario Anselmetti (Editor)
ISBN: 978-3-527-31864-3
March 2009

Tumor-Associated Antigens: Identification, Characterization, and Clinical Applications
Olivier Gires (Editor), Barbara Seliger (Editor)
ISBN: 978-3-527-32084-4
March 2009

The Eukaryotic Cell Cycle: Volume 59
Editors John Bryant, Dennis Francis
Series: Society for Experimental Biology
ISBN: 9780415407816
Publisher: Taylor and Francis
2007

RNAi (Advanced Methods)
Martin Latterich (Editor)
Publisher: Taylor & Francis; 1 edition (2007)
Language English
ISBN-10: 0415409500

Understanding Bioinformatics
Marketa Zvelebil, Jeremy O. Baum
2007
Paperback: 978-0-8153-4024-9

Cancer Chemotherapy: Basic Science to the Clinic
Rachel Airley
ISBN: 978-0-470-09255-2
March 2009

Meeting Reports

BSCB conference: 'The Dynamic Cell'

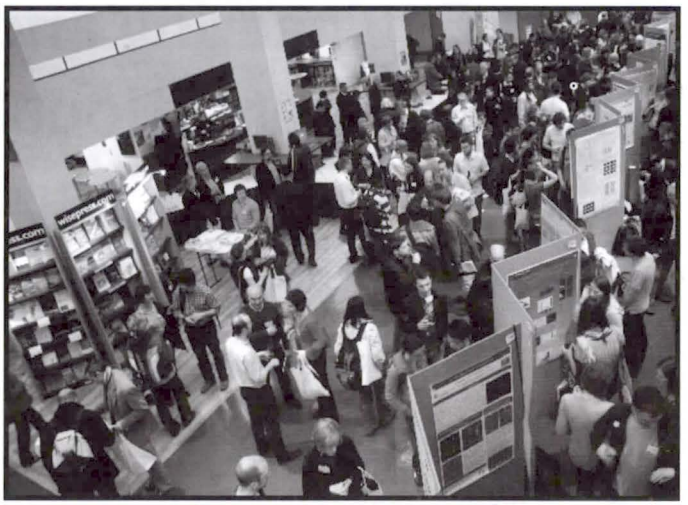
1–4 April 2009, Edinburgh

April 2009 saw a first – 'The Dynamic Cell', an inaugural conference organized jointly by the BSCB (Margarete Heck, Edinburgh and Andrew McAinsh, Oxted), and the Biochemical Society (Rob Insall, Glasgow and Barbara Reaves, Bath). The 4 musketeers were very ably assisted by Kairbaan Hodivala-Dilke (London, BSCB meetings officer), and Ian Dransfield (Edinburgh, Biochemical Society meetings officer).

The conference was held in Edinburgh, at the central University of Edinburgh George Square site. As the weather blessed us all with dry, fequently blue, skies – no one dared complain about the daily walk from Pollock Halls accommodation to the architectural triumph that is Appleton Tower (internal renovations belie the decrepit 60s façade!).

The general consensus amongst the more than 300 delegates (329 registrations!) was one of great satisfaction with a highly stimulating scientific programme. The conference kicked off on 1 April with two outstanding plenary lectures presented with aplomb by Kai Simons, Dresden (Lipid rafts: membrane organization and trafficking) and Michel Bornens, Paris (Shape, polarity and division of animal cells) – who both highlighted the importance of integrated scientific approaches to successfully tackling complex, dynamic problems of interest. The excellent standard of plenary talks continued with the two societies' junior Award lectures: the Biochemical Society's Early Career Research Award to David Komander (MRC-LMB – Phosphorylation and ubiquitination: common principles in signal transduction), and the BSCB's Hooke medal to Erik Sahai (CRUK, London – Cancer cell invasion in complex environments). Joan Steitz (Yale) was deservedly awarded the Jubilee Medal by the Biochemical Society for her long-term, seminal work on small RNPs as versatile regulators of gene expression in vertebrate cells.

Concurrent sessions (morning and afternoon on the 2 and 3 April) on many aspects of dynamic cellular processes covered the topics of: motors and organelle movement, signalling in mitosis, lipid droplets - dynamics and novel functions, dynamics of microtubules, cell biology of the immunological synapse, the endocytic pathway, emerging mechanisms of cell movement, and rabs and dynamic cellular processes. Importantly, each of these sessions included two talks selected from abstracts, ensuring the presentation of exciting, new results by postdoctoral fellows and postgraduate students. The morning and afternoon sessions were interspersed by the inaugural Collaborathon workshop, and the Careers Speed Dating Event held over the lunchtime breaks. Both events provided unusual opportunities for scientific networking, and careers advice. If you happened to have any spare time, then you were able to take advantage of the expert guide to Edinburgh [including not only pubs!] composed by Veronika Ganeva, the BSCB postgraduate representative.



A number of factors contributed to making this conference the success that it was. While the well-crafted scientific programme helped to draw delegates in in the first place, the evenings' drinks receptions with poster sessions (or was it posters with drinks?) helped to keep delegates around once the formal talks of the day were finished! It was terrific to see how much enthusiasm for scientific exchange could still be mustered after a full day of talks. Another important reason that the meeting was successful was because the 'boundaries' between the societies were blurred – there were no sessions that were labeled BSCB or Biochemical Society, and as such, no obligation to support one particular set of talks over another. Finally, the conference finished with a joint session on Imaging and New Frontiers. An awe-inspiring, impressive finale was provided by Jennifer Lippincott-Schwartz, NIH (Insights into organelle biogenesis and near molecular protein distribution using photoactivatable fluorescent protein technology) who showed just how far state-of-the-art imaging has come. We all have a lot to look forward to in the coming years!

What more appropriate venue to hold the gala conference dinner for the Dynamic Cell conference than Dynamic Earth in Holyrood Park? A sparkling wine reception was followed by a sumptuous 3

course dinner, and the presentation of prizes (below). The merriment continued with, in typical Scottish fashion, a ceilidh. Injuries seem to have been restricted to the morning-after, but a later start allowed all party-goers to attend the final morning's talks!

All delegates are to be thanked for their active participation and enthusiasm. While only a limited number of prizes could be awarded, the following deserving individuals came up trumps:

***Biochemical Journal* Poster Prize:** - £250, a framed certificate and host of *Biochemical Journal* goodies.
Winner: Helen Carstairs, University of Oxford.
Poster title: A Kinesin-based Molecular Shuttle.

***Biology of the Cell* Poster Prize:** £250, a framed certificate and one year's free online subscription to *Biology of the Cell*.
Winner: Guillermo Menendez, London Research Institute (LRI/CRUK).
Poster title: Neurotrophin axonal retrograde transport in microfluidic chambers.

Free trip to the ASCB meeting in San Francisco (December 2009).
Winner: Miriam Essid, University of Geneva.
Poster title: The exocyst complex in *Dictylostelium*: localisation and functional characterization.

Free registration to the EMBO meeting in Amsterdam (August 2009).
Winner: Tao Liu, University College London.
Poster title: The identification of the Tao-1 kinase as a key regulator of microtubule dynamics.

Abcam Award of £500 for best selected oral communication.
Winner: Thomas Nightingale, University College London.
Talk title: A crucial role for Rab27a and MyRIP in Weibel Palade body exocytosis

On-site organisation and crisis management was expertly handled by Frances van Klaveren, Biochemical Society Scientific Conference Organizer. Sponsorship was generously provided by: Biochemical Society Transactions, Portland Press Ltd, New England Biolabs, JPK Instruments Limited, Eurogentec, Wisepress, Photometrics, Labtech International Ltd, Science International, Hamamatsu Photonics UK Ltd, Abcam, Millipore Corporation, The Company of Biologists, Cell Press, Andor, Peprotech, CRUK. We all hope this will be the forerunner to future conferences jointly organized by the BSCB and the Biochemical Society (perhaps next in 2012) – to embrace the dissolution of "societal" separation!

Margarete Heck, University of Edinburgh

Tissue Engineering and Regenerative Medicine International Society (TERMIS) North American Chapter Meeting

7–10 December 2008; San Diego, USA

{ A flagship of the TERMIS, the annual North American Chapter Meeting in 2008 hosted over 900 delegates, 180 oral presentations and 425 poster presentations, and with participation from over 36 countries was an informative and truly multi-disciplinary conference. Hosted at the Hyatt Regency Hotel in the beautiful La Jolla area of San Diego, the call of the Pacific Ocean was never too far away! }

The meeting began with an excellent and thought-provoking opening keynote address by Professor George Daley of the Children's Hospital of Boston (in collaboration with the Harvard Medical School). Professor Daley described his work on the culture of embryoid bodies in a shear-stress environment, which resulted in up-regulation of markers for human embryonic stem (hES) cells. He also reminded the audience that so far pluripotency has so far been confined to the hES cells alone, and although a very exciting and promising area of research, advised caution of the hype that has been associated with the recent creation of induced pluripotent stem (iPS) cells, and the expectations of both the public and press.

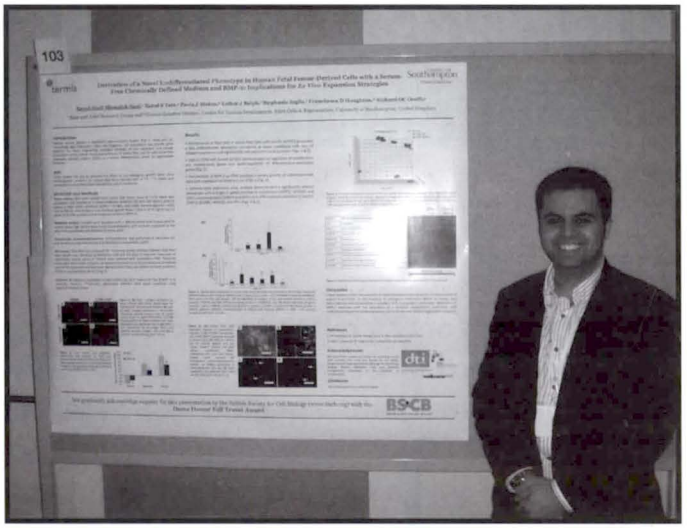
For those interested in bone and joint research, a presentation by Professor Jennifer Elisseef of Johns Hopkins University, Baltimore, demonstrated that chondroitin sulfate embedded in poly ethylene glycol (PEG) scaffold materials maintains the chondrogenic phenotype of seeded cells, with implications for cartilage tissue engineering. Dr Nenad Bursac of Duke University, showed that structural and functional interactions of stem cell and cardiomyocyte pairs resulted in expression of connexin-43 and n-cadherin by the stem cell populations, markers normally associated with heart tissue.

Dr Bryan Tillman, of the Wake Forest Institute for Regenerative Medicine gave an interesting talk describing a dialysis technique for the collection of endothelial progenitor cells for vascular tissue engineering. Using a selection technique with magnetically-tagged sepharose beads held within a column, cells positive for CD133 were retained while returning all negative cells back to the blood. Dr Tillman was able to enhance colony forming efficiency 600-fold and reduced the culture period to reach 10 million cells from 35 to only 12.5 days, and was moving to a trial in a sheep model for enhanced vascular repair strategies.

The meeting continued with an exciting and enthusiastic talk was given by Dr Rocky Tuan of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), USA, on the use of adult stem cells with nanomaterial scaffolds for tissue engineering. Dr Tuan described the trans-differentiation of cells that had already differentiated along mesenchymal lineages, spoke of the balance between 'stemness' and 'differentiation' genes, and hailed the 'fantastic four' transcription factors (Oct-3/4, SOX2, c-Myc and Klf4) involved in the creation of iPS cells. Using nanofibres made of the biodegradable polymer poly-lactic acid to mimic collagen fibres, Dr Tuan was able to create cartilage tissue up to 2 – 3cm in size, over ten times larger than other methods to date and suggested that these nanofibres, in addition to other tissue engineering applications, may be used to model the stem cell niche to investigate roles of MSCs and their interactions with endothelial cells and blood vessels.

Other highlights of the meeting included a talk by Dr Tao Xu from the University of Texas at El Paso who described printing of beta-TC6 (an insulin-producing cell line) within alginate droplets into a calcium chloride cross-linking solution in a process called Bio-inkjet Technology. The highly accurate device can deliver over 55,000 cells per second, or over one million cells in less than 20 seconds, the benefits of which become apparent considering the numbers required as cellular therapy becomes a reality. In addition, the technology can be used at the other end of the scale to produce single-cell droplets for high-throughput screening assays. In the Endocrine and Metabolic Tissue Engineering session, Professor Cherie Stabler of the University of Miami gave a very interesting talk on how immuno-encapsulation may be used to move away from current immuno-suppression strategies. Professor Stabler described how microencapsulation can be achieved with alginate/agarose mixes to produce ionically gelled materials with calcium carbonate, however this leads to uncontrolled breakdown of the hydrogels in vivo. By converting the ionic bonds to covalent linkages by cross-linking the alginate with PEG, they were able to produce a chemoselective encapsulation solution with controlled degradation. On the final morning, a very interesting talk by Dr Dean Chamberlain, University of Toronto, indicated that bone marrow-derived mesenchymal stem cells (BM-MSCs) enhanced neo-vessel formation in vivo when added to rat endothelial cell constructs. These constructs comprised BM-MSCs and an endothelial cell-lined module, fabricated from collagen, containing islet (insulin-producing) cells. The presence of the BM-MSCs decreased the host immune response, as assayed by the quantification of CD68-positive macrophage immune cells. In addition, the endothelialised modules appeared to increase blood vessel density around the islets, and maintained the viability and functionality of the islets.

A real asset of the TERMIS is their Student and Young Investigator Section (SYIS) which again organized a host of events, including a



Student-Meet-Mentor Lunch allowing students and young investigators to have uninterrupted access to a group leader or research head. I was able to discuss at length the characterization of mesenchymal stem cells (MSCs) with Professor Arnold Caplan of Case Western Reserve University, who had recently published a paper which stated that all MSCs are pericytes, but not all pericytes are MSCs. Other highlights of the program were a CV workshop, a Job Search and Networking workshop, an SYIS dinner and a panel discussion of career paths in tissue engineering and regenerative medicine. For those active types, and myself, that had signed up for the SYIS 5K Fun Run on the second day this meant a roll call at 6:30am for a jog around the highly impressive main campus of the University of California, San Diego, and some very fresh air in the lungs!

During the poster sessions I was able to present my own data on the use of a chemically defined medium for the expansion of human fetal-derived bone cells. In our studies we had applied a serum-free medium described for use on human embryonic cells and demonstrated the maintenance of proliferation ability with significantly reduced differentiation in comparison to controls with serum. In addition, when we used the chemically defined medium to model established osteogenic growth factors on the human fetal-derived bone cells, we showed a developmental phenotype in selected cells of the fetal population in the presence of bone morphogenetic protein 2 (BMP-2), with implications for differentiation studies, growth factor screening and developmental biology research.

Altogether, this proved a memorable and enjoyable meeting that proved a great opportunity to develop new collaborative networks and re-affirm existing friendships. I would once again like to offer thanks to the BSCB who made possible my attendance at this excellent conference.

Dr Sayed-Hadi Mirmalek-Sani presented data from his postdoctoral studies at the University of Southampton. He now holds a postdoctoral position at the Wake Forest Institute for Regenerative Medicine, North Carolina.

Actin 2008

8 December 2008; The Watershed, Bristol.

Although only a relative newcomer to the meetings calendar, the annual Actin meeting, organised by Harry Mellor and Giles Corey, is becoming quite a tradition amongst actin folk.

Actin 2008, was held at The Watershed in Bristol on the 8th of December and was attended by well over 100 delegates. It provides a great opportunity to catch up with new data via the series of talks and the lunchtime poster session. Furthermore, with ample time for informal discussions, it's the perfect chance to network and develop new collaborations. The emphasis is on giving young scientists a platform to present their work to an expert audience, with all speakers being either PhD students or postdocs whose abstracts were selected for presentation.

The meeting was kicked off with a session chaired by Harry Mellor. The first speaker was Mike Blundell, from Adrian Thrasher's lab at the Institute of Child Health. Mike presented his work on the role of a key phosphorylation site in WASp and how this impacts Wiskott Aldrich syndrome (WAS). He showed that knock-in mice with either phosphomimicking or phosphonull mutations in this site exhibited WAS-like phenotypes. Next up was Richard Bulgin, from Gad Frankel's lab at Imperial. Richard described his intriguing studies looking at the subversion of eukaryotic actin dynamics by the bacterial proteins EspM and EspT. Finishing off the first session was Patrick Caswell, from Jim Norman's lab at the Beatson Institute, who talked about the role of Rab-coupling protein in integrin and EGFR trafficking and its implication for tumour cell invasion.

After a break for coffee, Michael Deeks, from Patrick Hussey's lab at the University of Durham, opened the second session, chaired by Laura Machesky. Michael gave a very interesting talk on plant formins, focussing on AtFH4, a plant formin that has the ability to associate with microtubules as well as actin. The second talk of the session was given by Marios Georgiou, from Buzz Baum's lab at the LMCB; he presented his excellent work on epithelial adherens junctions, showing that the epithelial polarity machinery, Cdc42-Par6-aPKC, functions to locally regulate adherens junctions through Arp2/3-dependent endocytosis. Next up was Sarah Heasman, from Anne Ridley's lab at Kings College. Sarah described an RNAi-based screen designed to determine the different functions of Rho GTPases in T-cell extravasation, a process that requires precise reorganisation of the T-cell's cytoskeleton.

The second session was followed by a tasty buffet lunch and an excellent poster session. It was the perfect opportunity to catch up with old friends in the actin field and meet new ones. After lunch and posters Anne Ridley chaired the third session of talks. The first presentation was given by Eva-Maria Grimm-Gunter, from Francisco Rivero Crespo's lab at the University of Hull. Eva-Maria described her interesting work looking at the role of Plastin-1 in the intestinal brush border microvilli. She showed that in Plastin-1 knockout mice the actin/keratin network of the brush border is disrupted and results in increased fragility of the intestinal epithelium. Next up was David Killock, from Alex Ivetic's lab at Imperial, who talked about his work looking at L-selectin clustering and the role of serine phosphorylation in its regulation. The last talk of the session was given by Ireen Konig, from Kurt Anderson's lab at the Beatson Institute, who presented her data investigating whether the presence of a lipid diffusion barrier, seen in migrating fish keratocytes, is a general feature of cell protrusion. Ireen used Fluorescence Recovery After Photobleaching (FRAP) to show that diffusion is indeed significantly inhibited at the leading edge of lamellipodia in other cell types.

The final session of the meeting was chaired by Kate Nobes, with Morag Martin, from Michael Way's lab at Cancer Research UK, starting it off. Morag talked about Tes, a putative human tumour supressor gene that interacts with actin. Morag reported her new findings showing that Tes can interact directly with RhoA, an interaction that she is now exploring further. Unfortunately, the next speaker, Paul Timpson, was unable to attend the meeting due to illness, so instead his supervisor, Kurt Anderson, gave the talk using Paul's slides. I can report back to Paul that Kurt did an excellent job. Paul is using FRAP and photoactivation to study E-Cadherin dynamics during metastasis in live animals. He finds a significant difference between cadherin turnover in live animals compared to cultured cells, underlining the importance of complementing cell culture work with whole animal studies. I gave the final talk of the day, on my findings that Myosin-10 and actin play key roles in mitotic spindle function.

The day was wrapped up with drinks and a prize giving for the top poster and talk. The Thermo-Fisher/Dharmacon prize for best poster was awarded to Anna Dart, from Emmanuelle Caron's lab at Imperial, for her work on the role of Nck in phagocytosis. I was delighted to be presented with the talk prize by Dr Mark Thorne from the Biochemical Journal, the sponsors of the award. The Actin 2008 meeting would not be able to take place without its sponsors: the BSCB, The Biochemical Journal, Thermo-Fisher/Dharmacon, Cell Signalling Technologies, Cytoskeleton, Lonza, and Millipore. Also thanks to Harry and Giles for organising such a varied and vibrant programme – Actin 2008 was a really fun conference to attend and we all look forward to Actin 2009.

Harry Mellor and Giles Cory, University of Bristol

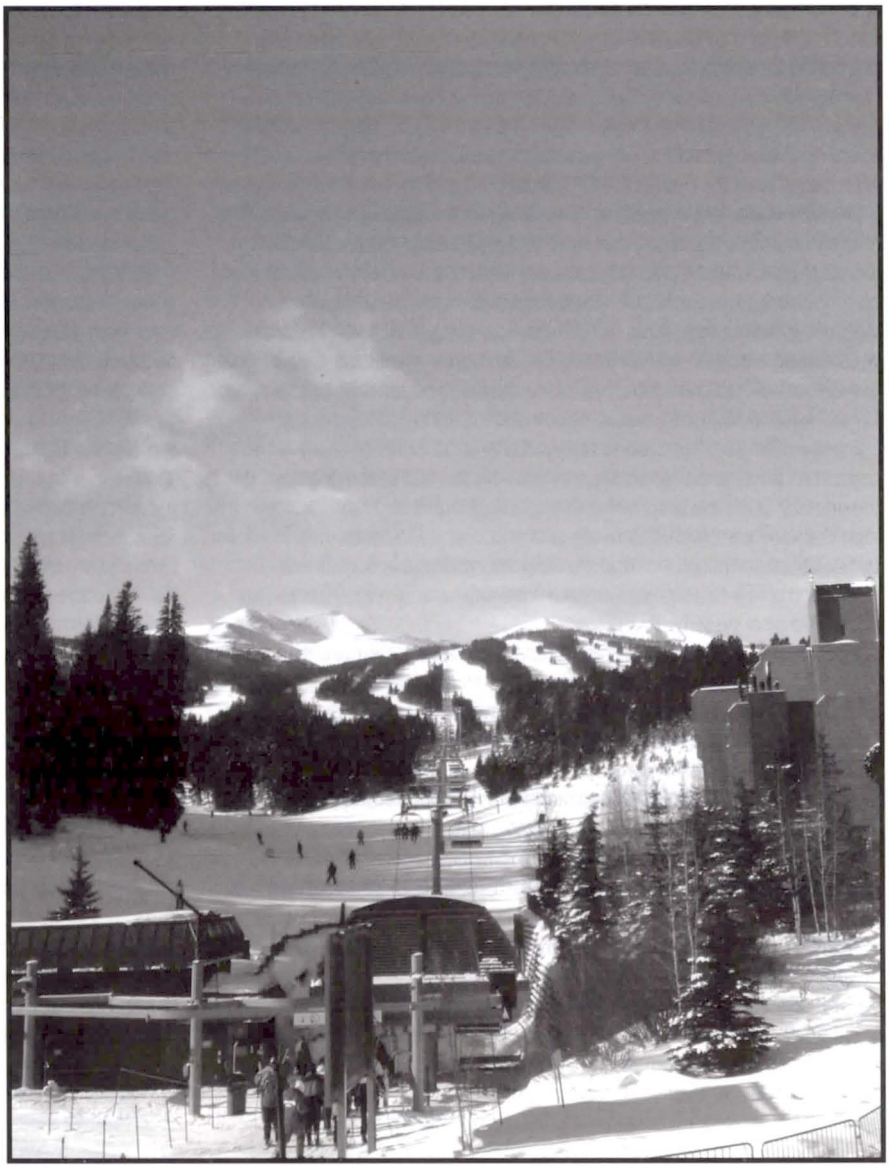
Keystone Symposia on Molecular and Cellular Biology: Omics Meets Cell Biology

25–30 January 2009; Breckenridge, Colorado, USA

The snowy heights of Breckenridge, Colorado, played host to the Keystone Symposia meeting entitled Omics Meets Cell Biology. It was the first such meeting held by Keystone Symposia, and was a great success.

Organised by Ruedi Aebersold (Institute for Molecular Systems Biology, Switzerland) and Tony Pawson (Samuel Lunenfeld Research Institute, Canada), the meeting brought together leading experts in cell biology and 'omics' technologies (genomics, proteomics, metabolomics, etc.) to discuss the ever-growing interface between the two disciplines.

After most attendees had begun to acclimatise to the high altitude of the conference resort, the first full day was dedicated to the impact of omics on cell signalling. Indeed, omics approaches lend themselves to the challenges in elucidation and interrogation of signalling networks. Tony Pawson presented the efforts of his lab in unravelling the bidirectional signalling of ephrins and Eph receptors, which play roles in cell migration, cell–cell communication and tissue development. Using stable isotope labelling of amino acids in cell culture (SILAC) and mass spectrometry (MS), they examined changes in the phosphorylation state of proteins when ephrin signalling was engaged. These MS-based analyses were followed up with RNA interference (RNAi) screens, which revealed candidates that were regulated by ephrin signalling. Protein phosphorylation is a key signalling mechanism in eukaryotic cells, and Ruedi Aebersold described how his lab was defining protein kinase–substrate networks in yeast. Using high-resolution MS, phosphopeptides from kinase- and phosphatase-mutant yeast lines were quantified, and activity profiles were generated. This analysis pipeline identified almost 900 in vivo substrates of kinases and phosphatases. Steven Gygi (Harvard Medical School, USA) presented work on a chemical genetic approach to identify direct cyclin-dependent kinase-1 (Cdk1) targets in yeast. Phosphopeptides were quantified from metabolically labelled yeast using MS, and hundreds of Cdk1 target sites were revealed.



Functional screening, predominantly utilising RNAi, was a common theme of the meeting, and many groups were developing exciting methodologies for the large-scale interrogation of gene, protein and metabolite function. To better understand the nature of cellular heterogeneity, critical for a meaningful systems-level interpretation of functional screens, Lucas Pelkmans (Institute for Molecular Systems Biology, Switzerland) analysed millions of single cells and found that the population context of cells influences their phenotypic variation in a non-random manner. He described a design principle of cellular heterogeneity and applied this to reveal molecules that affect viral

infectivity. Julie Ahringer (Gurdon Institute) described work on high-throughput genetic interaction screening in Caenorhabditis elegans to identify suppressors of genes involved in cell polarity. These data were used to expand and model the cell polarity network of C. elegans.

Ernst Hafen (Institute for Molecular Systems Biology, Switzerland) used a loss-of-function screen in Drosophila to identify proteins that controlled cell growth: in this work, fly head size. Coaffinity-purified binding partners of candidate proteins were then detected in an MS-based interaction screen, which revealed potential protein complexes involved in the regulation of cell growth. Impressive work by Jennifer Mummery-Widmer (Institute of Molecular Biotechnology, Austria) used a genome-wide, tissue-specific, inducible RNAi screen in Drosophila to study the Notch signalling pathway during external sensory organ development. Visible phenotypes were detected for 21% of protein-coding genes, and follow-up assays identified 23 novel genes regulating Notch signalling. To gain further insight into the functional data, protein–protein interaction network mapping and cluster analysis were used to implicate nine functional protein modules in Notch signalling, including the nuclear pore and COP9 signalosome. Also using Drosophila, Chris Bakal (Harvard Medical School, USA) presented an interesting analysis of Rho-family GTPase signalling molecules. Quantification of hundreds of cellular features following high-throughput RNAi of Rho signalling components and computational analysis of the resulting morphological signatures enabled the role of Rho signalling in cell shape and migration to be examined at a systems level.

In the search for regulators of cell survival and migration, the lab of Joan Brugge (Harvard Medical School, USA) used an RNAi screen of 313 migration and adhesion-related genes and assessed the ability of human mammary epithelial cells to heal a wound in culture. High-throughput time-lapse microscopy revealed migration defects and thus putative regulators of cell adhesion. Marta Lipinski (Harvard Medical School, USA) used an image-based RNAi screen to identify molecular mechanisms regulating autophagy in mammalian cells. Secondary screening identified hits that were highly enriched in genes encoding extracellular matrix proteins and receptor signal transduction, implicating cell surface receptor signalling in autophagy regulation. Steve Elledge (Harvard-Partners Center for Genetics and Genomics, USA) presented a fluorescence-based in vivo system to monitor protein stability: Global Protein Stability profiling. This system was used to identify substrates for ubiquitin ligases that are important in the DNA damage response. Daniel Durocher (University of Toronto, Canada) used an automated microscopy-based assay coupled with RNAi to screen human cells for ionising radiation–induced foci correlating to DNA double-strand breaks. The screen and follow-up characterisation identified two ubiquitin ligases as regulators of the response to DNA damage.

Garry Nolan (Stanford University, USA) presented an impressive analysis of multiple, simultaneous signalling readouts, such as activated kinases, from single cells using multi-parameter flow cytometry. This technique was used to analyse primary cancer cells and to map signalling network signatures associated with subsets of cancer. Importantly, using correlative computational analysis, these signatures were shown to be predictors of clinical outcome and therefore represent a focus for potential therapeutic targets. Trey Ideker (University of California, San Diego, USA) mapped physical and genetic interaction data to construct network models of gene regulation in breast tumours. These models were used to identify protein interaction subnetworks that correlate with metastasis and thus represent putative markers for tumour progression.

Structural work by the lab of Wolfgang Baumeister (Max Planck Institute of Biochemistry, Germany) demonstrated three-dimensional imaging of cultured neurons using cryoelectron tomography, revealing molecular-resolution relationships between cellular components. Taking a structural genomic approach, Cheryl Arrowsmith (Ontario Cancer Institute, Canada) used purified proteins to profile enzyme activities and to investigate potential substrates and inhibitors. This approach was focussed on proteins involved in the ubiquitylation system, chromatin interactions and epigenetic regulation.

To provide a comprehensive view of metabolic pathways, the group of Steve Oliver (University of Cambridge) is using flux balance analysis to reconstruct metabolic networks in yeast. Utilising logical formalism and, intriguingly, a robot scientist called Adam, metabolic pathways could be modelled automatically. Uwe Sauer (Institute of Molecular Systems Biology, Switzerland) used MS and heavy-isotope carbon–based flux analysis to dissect the transcriptional control of active metabolism in yeast. Edward Dennis (University of California, San Diego, USA) described the use of MS-based approaches to analyse lipids and their metabolites. He reported the application of these techniques to profile eicosanoid changes in joint tissues of mice suffering from Lyme disease.

The implementation of high-throughput omics strategies necessarily generates large volumes of data, and dissemination of these data is an important responsibility of those conducting omics research. In addition to the publication of large datasets, several community resources have been developed for the deposition and curation of omics data. Mathias Uhlén (Royal Institute of Technology, Sweden) reported the release of the newest version of the Human Protein Atlas (www.proteinatlas.org). This web portal provides a publically available, searchable database of more than 5 million high-resolution images generated by immunohistochemistry and confocal microscopy of normal and disease tissue using antibodies against 5,000 human genes. Described by Edward Dennis, the LIPID Metabolites And Pathways Strategy (www.lipidmaps.org) is a lipidomics resource that provides tools, protocols and data regarding lipid metabolism and lipid-based disease. A similar resource also exists for cell migration research (www.cellmigration.org). Christian von Mering (University of Zurich, Switzerland) described the STRING database (string-db.org), a web-based tool dedicated to physical and functional protein–protein interactions integrated from various sources. Scott Floyd (Beth Israel Deaconess Medical Centre, USA) illustrated the use of the image analysis program CellProfiler (www.cellprofiler.org) for high-throughput image-based screens for DNA damage; Gary Bader (University of Toronto, Canada) talked about Cytoscape (www.cytoscape.org) for analysing and visualising network data; and Rolf Apweiler (European Bioinformatics Institute) discussed the utility of databases such as UniProt (www.uniprot.org). Such bioinformatic resources are critical for continued advancement and fruitful, bidirectional interplay between omics researchers and cell biologists.

Overall, the meeting tackled very current issues regarding the quantitative, global and high-throughput analysis of biological molecules. The diversity in interests of the attendees resulted in a real and timely convergence of biology and large-scale omics technologies. I am grateful to the BSCB for the Honor Fell Travel Award that enabled me to attend this excellent conference.

Adam Byron, University of Manchester

The 55th meeting of the Orthopaedic Research Society

22–25 February 2009, Las Vegas, USA

The annual meeting of the ORS is widely recognized to be a key meeting in the field of connective tissue physiology and pathology. With 2481 accepted abstracts, a record number studies were presented to the ORS and I looked forward to the opportunity to presenting my work to such an international audience.

In February this year I travelled to Las Vegas, USA to present some of my recent research at the 55th meeting of the Orthopaedic Research Society. This year, the meeting was held in the ornate Venetian styled Hotel-Casino in the heart of the infamous Vegas Strip. Not to be outdone by the surrounding hotel themes such as the volcano and pirate ship, the Venetian sports its very own serenaded gondola ride experience.

The conference structure consisted of four concurrent early morning workshops, with the remainder of the day divided between numerous parallel sessions. Fortunately, the time difference between London and Las Vegas made the morning workshops a little easier to catch after a long-haul flight! The topics highlighted in the morning workshops included the role of Primary Cilia as a mechanosensor within skeletal tissues such as bone (CR Jacobs, New York) and cartilage (A Poole, Dunedin, New Zealand), Emerging imaging techniques for the assessment of cartilage damage such as Atomic force microscopy (A Grodzinsky, Cambridge, MA), and the use of infrared spectral assessment of cartilage in situ (N Pleshko, Philadelphia, PA) and the development of novel biomaterials intended to advance the repair of the soft tissues, tendon and ligament. In addition to the formal speaker sessions, highlighted poster and exhibit sessions allowed more informal meetings and the opportunity to accommodate the ever increasing number of submitted abstracts.

A particular highlight for me was the workshop "orthopaedic complications in animal models of aging". This workshop related the role of oxidative stress to the effects of age-related pathology. Aging is associated with tissue degeneration as well as a reduced capacity of regeneration. For orthopaedics, age-related pathologies include disc degeneration, osteoporosis, osteoarthritis and poor healing of bone fractures. These conditions have an increasing incidence with advancing age so this topic was of particular interest to the cartilage research community as well as being of much wider interest. Dr Laura Niedernhofer (Pittsburgh, PA) was the first speaker in this workshop and began by discussing the role of developing mouse models of accelerated aging. As well as many visual signs and symptoms that we recognize in aging animals, the mice expressing an accelerated aging phenotype also developed arthritic conditions at a considerably earlier age compared to wild type mice. These animals, it is proposed, can then be used as tools for screening potential mediating factors in the aging process. Preliminary studies of the Pittsburgh group now use the mice to test the efficacy and potential signaling pathways through which such age-associated diseases are mediated, with some encouraging findings in the field of oxidative stress and the ameliorating effects of antioxidants.

The theme of oxidative stress and its inhibition was continued in a later podium presentation given by the group headed by J Buckwalter (Iowa city, IA). Here, a fascinating study was described whereby chondrocytes react to impact trauma to cartilage by an increased generation of reactive oxygen species (ROS). It is well established that mitochondria are a key source of ROS in cells, and the investigators described the successful inhibition of ROS by treating the damaged tissue with a mitochondrial inhibitor, rotenone. The ROS levels appeared reduced and, to satisfy the goal of the study, viability was protected in the event of impact trauma. This study was a little surprising if it is considered that chondrocytes have an exceptionally low level of mitochondria and typically derive 95% of their energy from glycolysis. This work further highlights the role that mitochondria play in cell signaling cascades, and act as more than simple ATP generators!

The final day of the ORS meeting traditionally overlaps with the meeting of the American Association of Orthopaedic Surgeons in an ORS/ AAOS combined day and the 2009 meeting retained this tradition. The paper sessions during the combined symposia tend to be of a more clinical nature. At the end of an intense science meeting it is a good opportunity for the researchers to reflect on the final goal of our collective work, taking the studies from bench to bedside by translating basic science into new therapeutic strategies. The combined sessions concluded the meeting on Wednesday, leaving a little time to explore the nearby Red Rocks Canyon before my onward journey to a lab visit in California. I would like to take this opportunity to thank the BSCB for the Honor Fell award that made it possible to travel to Las Vegas in order to present my work at this meeting

Hannah Heywood
Cell and Tissue Laboratory
School of Engineering and Materials Science
Queen Mary, University of London.

50th Annual *Drosophila* Research Conference

4–8 March 2009; Chicago, Illinois

The Annual *Drosophila* Research Conference is the official North American congress of the *Drosophila* research community that has the aim to ensure and facilitate communication. This year's 50th anniversary meeting was celebrated in Chicago and sponsored by the Genetic Society of America. During these 50 years the attendance has grown from less than 100 to over thousands of people.

This year's congress consisted of several sections including, Educational workshops, Platform sessions, mentor luncheon plenar, historical speakers, award lectures, symposia, poster sessions and awards (specifically the Larry Sandler memorial lecture, poster and *Drosophila* image award). Study groups and other organizations attracted well-known speakers from all over the world who covered a wide range of recent developments in their field.

It was a very interesting and fascinating conference and I found the workshop about proteomics in *Drosophila* particularly interesting. The organizers Ernst Hafen from ETH, Zurich, Switzerland and Alexey Veraksa, University of Massachusetts, Boston, USA introduced the speakers who presented innovative tools in their studies to achieve a comprehensive understanding of proteomics in *Drosophila*. Particularly intriguing was the work presented by Erich Brunner, University of Zurich. He introduced a suitable method for the identification and quantification of the components of complex sample mixtures and the subsequent realization of a library accessible to the fly community.

Another project presented by Eric Brummer and realized thanks to the collaboration of 8 different groups all located at the University of Zurich, Switzerland and the University of Ghent, Belgium, aimed to understand the biological function of N-terminal acetylation of proteins A large percentage of eukaryotic proteins appear to be amino-terminally acetylated and their relevance in biology has never been studied. They analyzed the amino-terminal peptides from proteins extracted from *Drosophila* Kc167 cells and presented the compilation and detailed analysis of 1300 mature protein N-terminal. They showed, utilizing an elegant approach, that acetylation occurs in insects according to the same rules and with a similar frequency as has been determined for mammals and yeast.

It was really a great experience that has positively influenced my professional growth. I also presented my work "Examination of Invadolysin and its interaction in *Drosophila* development" in the poster session "Cell Biology and Signal Trasduction" and I received suggestions about my project and forged collaborations with other scientists who are experts in this field. This is one of the main aims that the *Drosophila* Research Conference has achieved in the last 50 years: the forging of new collaborations between young and senior investigators in this field.

I would strongly encourage every student or postdoc that is part of this community to take part of the *Drosophila* Research Conference. I would like to thank the BSCB for the Honor Fellow Travel Award that covered part of the expenses for my attendance to this congress.

Francesca Di Cara PhD, University of Edinburgh

British Yeast Group Meeting

17–19 March 2009; Barceló Cardiff Angel Hotel

The British Yeast Group Meeting is an annual meeting which has run for 32 years and draws researchers from the UK, Ireland and the wider EU, using yeast species to study molecular biology, cell biology and biochemistry. This year, 105 delegates from 38 different institutes attended.

The British Yeast Group Meeting 2009 (BYG2009) was organised by Dr. Nicholas Kent, hosted by the Cardiff University School of Biosciences and was generously sponsored by the British Society for Cell Biology. Full programme details are available at

www.byg2009.cf.ac.uk.

The past few years have seen a surge of discoveries in basic molecular biology, genome dynamics and evolution which have utilised both yeast genetics and high-thoughput analysis. This year's choice of Invited Speakers and the distribution of Offered presentations reflected this trend. The meeting began with a session exploring recent work, co-ordinated by Ray Waters and Simon Reed (Cardiff University), utilising micro-array technologies to probe mechanisms of genome-wide DNA repair. New insights into the generation and processing of DNA breaks during DNA replication and recombination were explored in a session led by Matthew Whitby (University of Oxford), and the role and maintenance of telomeres in both budding and fission yeast systems was discussed in the session led by Julie Cooper (CRUK, London Research Institute). Kim Nasmyth (University of Oxford) presented stunning images of chromosome segregation in a session sponsored by the British Society for Cell Biology which explored various aspects of chromosome cohesion. Brehon Laurent (a recent arrival to the UK from the Mount Sinai School of Medicine) led a session describing novel work on chromatin structure in regulating chromosome function. Jesper Svejstrup (CRUK, Clare Hall Laboratories) presented evidence of a novel system for ensuring accurate ubiquitin-mediated protein degradation in a session which also explored other covalent protein modification systems in response to cell stress. Moving out of the cell nucleus, Daniela Delneri (University of Manchester) led a session reporting attempts to understand proteome and metabolome function and evolution, and Carol Munro (University of Aberdeen) described work on the pathological yeast Candida albicans in a session which also explored yeast systems in drug design and bioethanol formation.

BYG has a long tradition of encouraging junior lab members to present work orally. Of 26 Offered Talks, 6 were given by graduate students and 9 by post-doctoral researchers. One post-grad and two post-doc poster abstracts were selected for oral presentations. Josefin Fernuis (post-doc, University of Edinburgh) won a £100 Formedium prize for her talk on pericentric chromosome cohesion, and Alicja Sochaj (post-graduate, University of Edinburgh) won a £100 Formedium prize for her poster on spindle checkpoint signaling.

Nicholas Kent, University of Cardiff

Annual meeting of the British Society for Investigative Dermatology

30 March – 1 April 2009; Royal Agricultural College, Cirencester

Set in the beautiful Cotswolds area, the Royal Agricultural College was chosen this year as a venue for the annual meeting of the society of British skin researchers. After an admittedly uninspiring drive down south, we were quite agreeably surprised with the location – classic, cosy and relaxing were adjectives coming to mind. Shortly put, an ideal venue for a small scientific meeting, of course including the all-important bar for after-dinner drinks and networking.

We arrived just in time to see Dr Roger Kaspar (TransDerm Inc, Santa Cruz, CA, USA) present his talk on overcoming skin delivery issues in developing siRNA therapeutics, set within the context of finding a cure for the skin disease pachyonychia congenita (PC). PC is a very rare genetic skin disorder caused by a single mutation in any one of four keratin genes (K6a, K6b, K16 or K17), the most debilitating feature of PC being extremely painful blisters and calluses on hands and feet. The therapeutic strategy of Dr Kaspar's team was to design and validate siRNA targeted against the mutated keratins (at which they succeeded in a very convincing manner), and now to develop a method to deliver these siRNA complexes to the skin of affected patients (which is very challenging and ongoing).

The first day of the meeting ended with a dinner in the dining hall of the College, followed by some rest and recreation in the bar and an early night in view of me giving a talk the next day.

Tuesday morning was filled with short research presentations summarizing current advances in skin research in the UK, mostly targeted on skin cell biology and cancer research. The morning ended with a real highlight, a talk by Prof. Sabine Werner from the ETH Zurich, Switzerland, who is an eminence in the field of wound healing and in studying the roles of growth factors and reactive oxygen species in this process. The subject of her talk at the RAC was "Parallels between wound repair and cancer", in which she detailed the latest findings of her lab. This talk was a pleasure to see not only because it was very relevant to my own work, but also because of the quality of the presentation.

The day continued with more short presentations, this time on photobiology-related topics, and another very interesting lecture from Prof. Peter Karran (London Research Institute at Clare Hall, Cancer Research UK). Prof. Karran gave an impressive and very didactic summary of years worth of research aimed at understanding how DNA repair interacts with drug-damaged DNA, how drug resistance evolves following drug treatment, and the

relationship between these phenomena and the development of cancer.

The day went on with seeing posters and ended with a quick drive to town for a short visit of Cirencester followed by the annual dinner, which is always a very pleasant and cheerful time at BSID meetings, including the digestifs taken in the picturesque bar.

Wednesday saw more short presentations (skin immunity and hereditary skin diseases) and the meeting ended after a last feature talk by Prof. David Wraith (University of Bristol), who presented immune regulation as being a therapeutic strategy for allergic and autoimmune diseases.

The BSID meetings feature presentations broadly spread across different fields of skin research. There is always a strong cell biology component that makes it an interesting and worthwhile (also small and cosy) meeting to attend. Therefore, thanks a lot to the BSCB for having enabled me to attend this year's meeting and to present and discuss my findings!

Ralph Jans, University of Newcastle

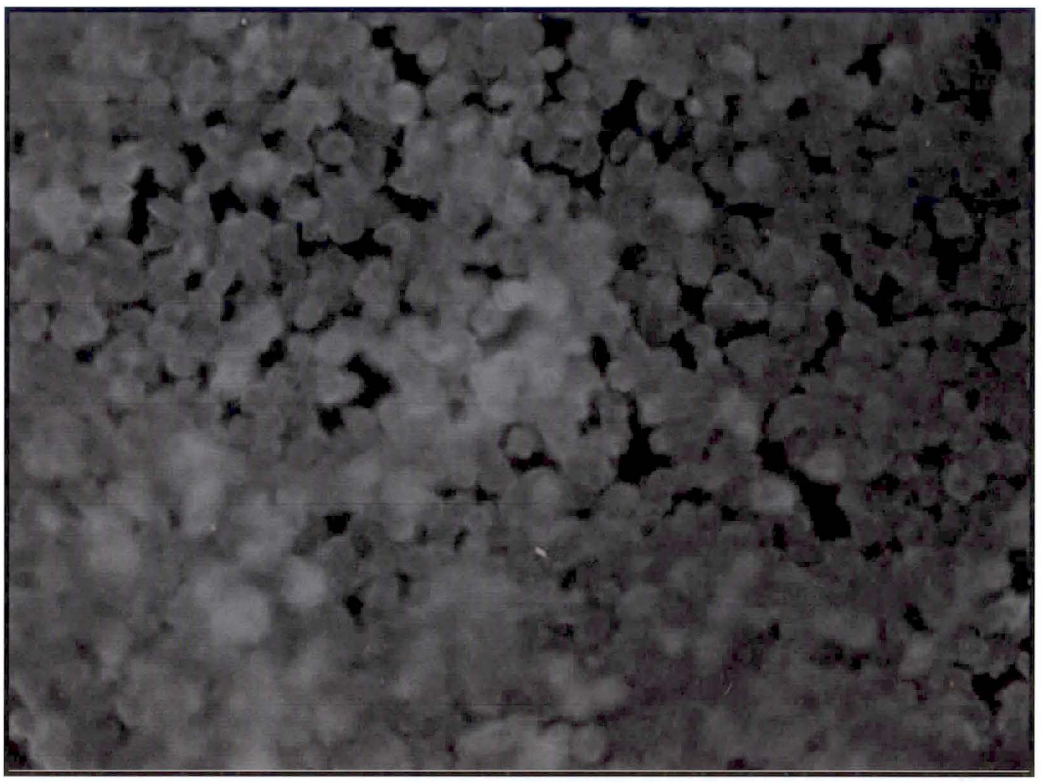
Abcam Human Pluripotent Stem Cells Symposium

22–24 April 2009; Dublin, Ireland

The Croke Park Conference Centre united the cutting-edge scientists in stem cells, covering therapeutic applications of and induced pluripotent stem cells, with a focus on epigenetic mechanisms. It was a groundbreaking meeting for the stem cell biologist. The organisation was fantastic as well, and we had the chance to enjoy the cultural aspects of traditional Ireland.

From the welcome word from Stephen Sullivan (Trinity College Dublin, Ireland), the words expert and important have been repeated as much as stem, pluripotent, reprogram and manipulating. Stephen Simpson, director of Science Foundation Ireland, was looking forward to the engineering of the science, which has been growing in excellence in many areas of research in Ireland, including human embryonic stem cells. Managing public expectations and keeping public support is the biggest challenge the foundation is finding at present. Patrick Cunningham, chief science advisor to the government of Ireland, spoke about economy progressing rapidly in Ireland towards higher education, decades after secondary education was generally spread in the Irish population. Still, it will take another ten years for Ireland to arrive at the mean level of the other EU countries. Then Clive Williams (Dean, Faculty of Engineering, mathematics and Science, Tritiny College, Dublin, Ireland) spoke about Trinity College, the first University in Ireland, is strong in

cancer, neuroscience, cell and molecular biology, creating an environment for stem cells. Seema Sharma (Abcam senior marketing coordinator) explained how the scientific program of the meeting was created, with subject in disease and focused in mechanisms.



Below left: A colony of stem cells grown *in vitro*. Above: Immunofluorescence image of human embryonic stem cells labelled with differentiation markers.

Disease modelling

After these introductions, we were left to the science itself, Sessions 1 and 2 being devoted to disease modelling, and first talk being that of one of the biggest scientists in the stem cell field, Benjamin Reubinoff (Hadassah Medical Organization, Jerusalem, Israel), who spoke about the road to the clinical application of stem cells. The clinical grade human embryonic stem (hES) cells will preferably be cultured using xeno-free methods, and following good manufacturing standards (GMP). They will have to be induced to differentiate as well, and he gave details of methods to derive neuronal precursors from hES cells, and mentioned several ways of achieving therapeutic effects from them, either trophic, immunomodulatory or regenerative. His laboratory has been focusing in multiple slcerosis (MS) and age related macular degeneration (AMD), and has obtained good regeneration in animal models.

Lorenz Studer (Sloan Kettering Institute for Cancer Research, New York, USA) spoke about the human neural lineage project which its being carried out at his institution, the novel strategies they are using for genetic identification, the isolation of neural progenitor cell intermediates, and their model of familial dysautonomia, caused by a mutation on the IKB gene. Paolo Di Giorgio (Salk Institute for Biological Studies, La Jolla, CA, USA) spoke about Amyotrophic Lateral Sclerosis (ALS) and the *in vitro* model of the disease they have generated, in which mutated glial cells contribute to the disease as well as the predominant death of motor neurons which cause the fatal condition. Rick Livesey (University of Cambridge) approached the development of the brain and the biology of neocortical stem cells, presenting results about the molecular characterization of multipotency and differentiation, specifically by Pax6 transcription factor. Justin Ichida (Harvard Stem Cell Institute, Cambridge, MA, USA) presented his work in progress on stem cell reprogramming with small molecules, to substitute the wider used genetic modification which is raising concerns about safety.

On day 2, Nissim Benvenisty (University of Jerusalem, Israel) spoke about the role of human embryonic stem cells in modelling human genetic disorders. Lesch-Nyhan disease, caused by uric acid overproduction, was targeted by elimination of the responsible gene (HPRT1) by homologous recombination. Turner's syndrome, caused by chromosome X monosomy, was studied in ES cells with spontaneous loss of one of the sex chromosomes. Fragile X syndrome was modelled by deriving hESC lines from affected embryos after diagnosis by preimplantational genetic diagnose (PGD).

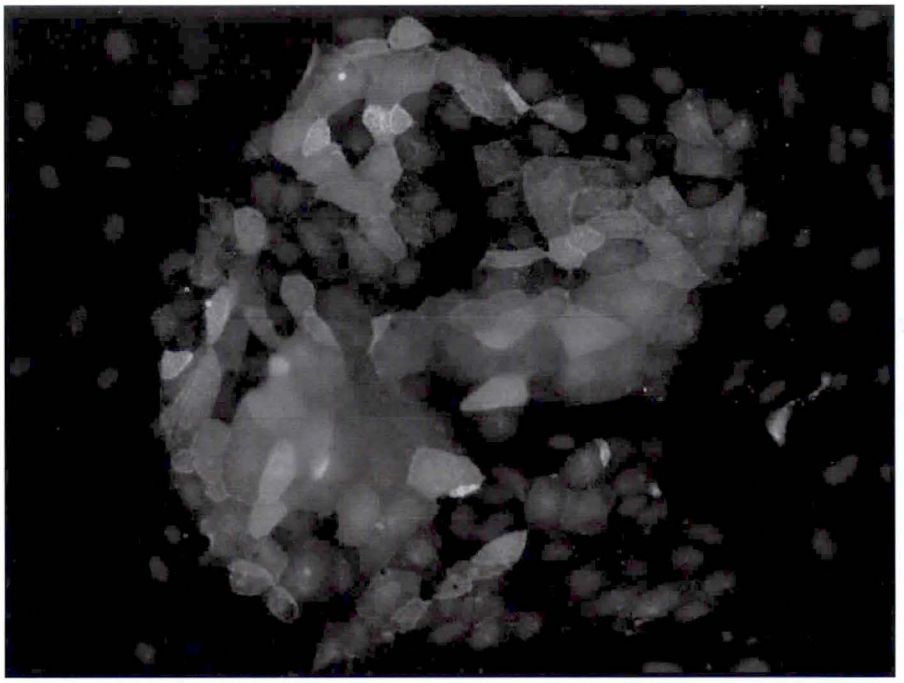
Alan Colman (Institute of Medical Biology, Singapore) told us on their studies onto induced pluripotent stem (iPS) cells and research into aging. He presented a comprehensive check list on the suitability of iPS for therapeutic use and presented a model for Hutchinson-Gilford progeria syndrome, caused by defects in the nuclear lamin genes. Jeffrey Karp (Harvard Stem Cell Institute, Cambridge, MA, USA), described chemical engineering strategies to modify cellular surfaces in order to increase their adhesion ligands and so their potential to home to tridimensional structures and tissues.

Cecile Martinat (Institute for Stem cell Therapy, Genopole, Evry Cedex, France) spoke about their model of myotonic dystrophy type 1 (DM1), the microRNA array they used to identify the molecular pathways associated with the disease, and the High Throughput Screening (HTS) approach they set up to identify new molecules able to disrupt the aberrant nuclear RNA aggregation associated to the pathology. Elsa Quintana (University of Michigan, Mi, USA) presented a new method to detect tumorigenicity of human melanoma cells in animal models, to the level of single cells, which yielded a 27% of tumour formation. Antoine Marteyn (INSERM/UEVE, Evry Cedex, France) further extended Cecile Martinat's work on DM1 presenting his results on the derivation of motoneurons from hESC derived from affected embryos to study the molecular and cellular mechanism of the disease.

Tissue culture, engineering and drug screening

The tissue culture, engineering and drug screening session (3) began with Ian Wilmut (University of Edinburgh), who spoke about stem cells in drug discovery and toxicology, and how new disease models based on stem cells may save efforts in drug discovery by helping to rule out unacceptable side effects. Miodrag Stojkovic (CIPF, Valencia, Spain) showed us a rat model of spinal chord injury (SCI) and its regeneration by ependymal stem cells or oligodendrocyte precursors from same model.

Peter W Andrews (University of Sheffield) presented data about the population dynamics of hES cells, and their adaptation to *in vitro* culture. The landscapes and attractors theory was used to explain commitment decision during cell differentiation. Dan Anderson (MIT, Cambridge, MA, USA) presented HT and combinatorial methods to develop biomaterials for tissue



Left: Immunofluorescence image of human embryonic stem cells labelled with differentiation markers.

engineering and drug delivery. He brilliantly showed us the chemical diversity polymerization can yield, and the nanoscale used to conjugate DNA to thousands of biomaterials in order to improve delivery in gene therapy applications.

Fate decisions, reprogramming and differentiation

The last session (4), addressed fate decisions, reprogramming and differentiation, and began with In-Hyun Park (Children Hospital, Boston, MA, USA), who presented his iPS cells derived from patients affected by a panel of inherited diseases including adenosine deaminase deficiency severe combined immunodeficiency, shwachman-bodian-diamond syndrome (SBDS), Gaucher disease type III , duchenne muscular dystrophy (DMD), Becker muscular dystrophy (BMD), Parkinson and Hungtinton diseases, juvenile onset diabetes mellitus (JDM), down syndrome/trisomy 21 and lesch-Nyhan syndrome carrier. The emergence of techniques for reprogramming somatic cells to pluripotency offers an unprecedented opportunity to recapitulate both normal and pathologic human tissue formation *in vitro*, thereby enabling disease investigation and drug development, as he explained.

Chad Cowan (Massachussets General Hospital, MA, US) presented epigenetic comparison between iPS and hES cells, which yielded a 5-10% differences in DNA methylation between both cell types, and spoke about adipogenesis and its modelling from hES cells. Ali H. Brivanlou (The Rockefeller University. New York, USA), apart from being so touched by the Irish feeling during the social event that he could still feel it on the following afternoon, explained how transcription factors are under control of the molecular signalling operating in the cells. He spoke about two branches of morphogens, TGFbeta signalling and BMP proteins, the inhibition of the first needed for neuronal differentiation, and the second leading to epidermal differentiation. He spoke about improvements to genetic modification by transposable elements, presenting a humanized version of the transposase enzyme, and the use of a PiggyBac system to study the function of the genes BMAL1 and CLOCK, coexpressed in hES cells and necessary for pluripotency.

Keisuke Kaji (University of Edinburgh), induced pluripotent stem cells without viral vectors, with the drawback of transfections resulting in integration differently from transductions. The combination of a single vector with a PiggyBac transposable system yielded an efficient reprogramming from embryonic fibroblasts with robust expression of pluripotency markers.

Chris Denning (University of Nottingham) spoke about his work on cardiomyocitic differentiation from hES cells, and the transgenic lines they have generated which express N-acetyltransferase from the cardiac specific MYH6 promoter, allowing enrichment of cardiomyocytes close to 100% under selection. He presented an electrode array for impedance recording in cultures. Monica Courtney (King's College London) showed that regulation of gene expression by promoter methylation plays a role in the control of hES differentiation towards a definitive endoderm phenotype, in her model of differentiation to insulin gene expressing pancreatic beta cells. Katherine Myers (Columbia University, NY, USA) spoke about cellular pathogenesis of Hutchtington disease (HD) from mouse models, in which the accumulation of more than 37 Glutamines in the gene causes the disorder. Lee Rubin (Harvard University, Cambridge, MA, USA) spoke about morphogens in the neural lineage and a HTS to select therapeutic compounds for spinal muscular atrophy (SMA) disease from a mouse model. Gavin Davey (Trinity College Dublin) used patient-specific iPS cells to study neurodegenerative disorders based on mitochondrial dysfunction as Parkinson, Alzheimer, Huntington's and other diseases at a biochemical level. The electron transport chain function was assessed after synaptosomal fraction isolation from normal and affected cells, and the role of mitocondria in the control of the release of glutamate from the nerve terminal was assessed.

The last talk of the meeting was my favourite, by Konrad Hochedlinger (Harvard Medical School, Boston, MA, USA), demonstrating how proliferative potential was underneath every control of cell reprogramming. He demonstrated that reprogramming is not restricted to rare adult stem cells as it has been suggested, although haematopoietic progenitor cells reprogrammed better than mature granulocytes. He showed data from different methodologies for reprogramming, and how spontaneously immortalised cells were more efficiently reprogrammed than the non immortal ones. These more plastic cells didn't differentiate as well as the control ones though.

Maria Camarasa, University of Manchester

12th TNF international conference

26–29 April 2009; Madrid

This conference focused on the physiological, pathophysiological, and medical significance of the members of the TNF ligand and receptor families, their signalling proteins, mechanisms of action and cellular functions.

The meeting focused on how TNF superfamily members contribute to specific physiological and pathological processes, on the functional interactions of the TNF family with other families of signalling proteins, and how these interactions impact in both directions. Each session addressed functions of the TNF family members, while invited speakers looked at other signalling proteins that interact with the TNF family members and make important contribution to the biological/medical phenomenon.

At the end of each session, a time was allotted solely for discussion of the major questions raised in that session. The round-table discussions were particularly interesting for me as the major open questions about the subjects of the sessions were addressed and it also allowed people to present additional data. In fact this session promoted thorough discussions and I found it great as a junior to participate to this open discussion.

Prestigious speakers such as Marc Feldmann, David Wallach, David Baltimore, Fran Balkwill, Jurg Tschopp, Carl Ware. Michael Karin. Henning Walczak attended this conference and I learnt a lot in terms of new finding and new developments in the field.

In conclusion, the 12th TNF conference highlighted the huge potential for exploring important biological and medical issues and interesting molecular mechanisms through the study of this family. I would like to thank the BSBC committee for funding my travel expenses and giving me a Honor Fell Travel Award.

Belinda Nedjai, National Heart and Lung Institute, Imperial College London

EMBO Conference Series on the Biology of Molecular Chaperones: Cellular Protein Homeostasis in Disease and Ageing

23–28 May 2009; Dubrovnik, Croatia

Scientists from around the world gathered in the UNESCO World Heritage City Dubrovnik to take part in the EMBO Conference Series on "The Biology of Molecular Chaperones: Cellular Protein Homeostasis in Disease and Ageing". Spoilt by the beauty of the location and the quality of the research, all participants agreed that this was an extraordinary meeting!

The meeting opened with a talk by Judith Frydman (Stanford University, USA) on protein folding and quality control pathways in the eukaryotic cytosol. To investigate the mechanism of lid closure in the eukaryotic chaperonin TRiC/CCT, single particle cryo-EM and comparative protein structure modelling was used to map TRiC and the *Methanococcus maripaludis* chaperonins in their open and

closed conformations. This revealed that ATP-induced lid closure changed the structure of the central chamber, and remodels the inter-ring interface. The EM work suggests that group II chaperonins have an altered interface between the apical and intermediate domains. This explained how the structurally similar eukaryotic TRiC and prokaryotic GroEL have different mechanisms of lid closure. To determine the mechanism of substrate selectivity by TRiC, the TRiC interactome was identified using both genomic and proteomic methods. It appeared that TRiC interacts and folds a functionally and structurally diverse set of proteins. However, TRiC preferentially interacted with large, hydrophobic proteins that are slow to fold and aggregation prone. Furthermore, it was shown that TRiC binds to the aggregation-prone form of Huntingtin carrying an expanded polyglutamine tract in a subunit specific manner. TRiC binding to mutant Huntingtin reduces its aggregation and toxicity and promotes homeostasis.

Regulation of chaperone function

The first day continued with presentations on the regulation of chaperone function. Elisabeth Craig (University of Wisconsin-Madison, USA) discussed the versatility of the J-domain/Hsp70 molecular chaperone machines. J-proteins are cochaperones for Hsp70 that stimulate the ATPase activity of Hsp70 through their J-domain. This stabilizes the interaction between Hsp70 and its substrate proteins. In addition to their J-domain, J-proteins comprise other domains through which they can bind directly to specific substrate proteins and deliver them to Hsp70. Using *Saccharomyces cervisiae*, they investigated the specialization of 13 cytosolic J-proteins. They found that J-proteins can be divided into generalised and specialised cochaperones with different effects on Hsp70 functions. The function of some J-proteins could not be recovered by any other J-protein, suggesting that these J-proteins had specialised functions. Among the specialist J-proteins was Sis1. Sis1 was found to be required for the propagation of three yeast prions. The mechanism behind prion propagation appeared to involve fragmentation of prion fibers to generate seeds that would convert newly synthesized proteins into prions. This mechanism was dependent on Sis1, Hsp70 Ssa and Hsp104, highlighting the importance of cahperoens in yeast prion propagation.

Laszlo Vigh (Biological Research Centre Szeged, Hungary) presented the mechanisms by which the lipid composition of the plasma membrane influences the expression of molecular chaperones. Cells exposed to benzyl alcohol, a non-proteotoxic membrane fluidizer, induced heat shock protein expression via the activation of HSF1. The benzyl alcohol-mediated induction of the heat shock response was dependent on the reorganization of cholesterol-rich microdomains in the plasma membrane. Similar microdomains were observed after heat stress, suggesting that they are required for the transmission of stress signals to induce a heat shock response. Furthermore, heat-shock proteins can be membrane-associated, influencing membrane properties and regulating lipid-raft associated signalling platforms. Thus, drugs targeted to specific membrane microdomains may be ideal therapeutic tools to modulate the heat shock response and chaperone expression in a specific manner.

On the second day of the conference, David Ron (Skirball Institute, NYU, USA) discussed the mechanisms governing mitochondrial unfolded protein response (UPR^{mt}). In a *Caenorhabditis elegans* genome-wide RNAi based screen nuclear genes whose loss of function impaired the activation of UPRmt marker genes were identified. One of these genes was dve-1, which encodes a nuclear protein with a DNA-binding domain. Another gene identified in the screen was ubl-5, which encodes the small ubiquitin-like protein UBL5. Upon stress, DVE-1 formed a complex with UBL-5. Both proteins were regulated by CLPP-1, which is localised to the mitochondrial matrix. Thus, whereas CLPP-1 functions in mitochondria to sense and relay the stress signal, DVE-1 and UBL-5 function downstream in the nucleus forming a complex to induce transcription of genes encoding mitochondrial chaperones. CLPP-1 associated with the mitochondrial AAA ATPase ClpX, which functions in protein degradation and is also required for UPR^{mt} signalling. This signalling is mediated by the mitochondrial ABC transporter HAF-1, as deletions in HAF-1 impair UPRmt signalling and *C. elegans* lacking HAF-1 are hypersensitive to conditions that promote protein misfolding in the mitochondrial matrix. These findings suggest a role for proteolysis and transport of the derivative peptides in linking protein misfolding in mitochondria to the expression of nuclear genes encoding mitochondrial chaperones.

Eelco van Anken (UCSF/HHMI, USA) described a new mechanism of signalling through the UPR. ER stress is sensed by the Ire1 receptor, a transmembrane kinase/endonuclease. Here it was revealed that ER stress caused Ire1 oligomerization at the ER membrane, which activated Ire1's RNase activity. This induced recruitment of the substrate mRNA HAC1 to the Ire1 oligomerisation foci. Recruitment of HAC1 mRNA required a conserved bipartite targeting element at its 3' UTR (3' BE) and translational repression. Indeed, translation of HAC1 mRNA and removal of its intron by splicing prevented its targeting to Ire1. Thus, translational repression not only mediates Hac1 protein synthesis after UPR induction, but also controls targeting of HAC1 mRNA to Ire1 foci. These findings suggest a new mechanism whereby targeting of specific mRNAs to UPR signalling centres at the ER membrane mediates the control of gene expression following ER stress.

Chaperone mediated degradation in the cytosol was also covered by Ana Maria Cuervo (Albert Einstein College of Medicine, USA), who presented her latest findings on chaperone-mediated autophagy (CMA) in ageing. CMA is required for the selective degradation of cytosolic proteins by the lysosome. This involves targeting of the substrate protein by the molecular chaperone Hsc70, and binding to the lysosomal CMA-receptor LAMP-2A. Previous studies showed that CMA declines with age due to reductions in the LAMP-2A receptor. This results in misfolded proteins accumulating in the cell. This study examined whether preventing the decline in LAMP-2A receptor levels during the ageing process would maintain cellular and organ functions in aged animals. Transgenic mice with normal CMA activity in the liver showed less oxidized proteins, fewer aggregates of misfolded proteins, reduced cell death in response to stress and improvements in liver function compared to control animals. Overall, these findings SHOW that maintaining normal lysosomal protein degradation during ageing improves cellular and tissue functions in old organisms.

On the third conference day, Jonathan Weissman (UCSF/HHMI, USA) presented a ribosome-profiling strategy based on deep sequencing of ribosome-protected mRNA fragments. This new technique was used to investigate translational changes in the budding yeast during starvation. The study revealed what protein sequences were being translated at subcodon resolution, allowing to predict the translated reading frame. It became apparent that translation is under extensive control, as protein abundance correlated with mRNA levels and translational rate. Different phases of translation were observed, with a decrease in ribosome density as polypeptide elongation proceeded. Surprisingly, during starvation ribosomes initiated translation at non-AUG codons. These findings reveal a tight regulation of protein translation by environmental stress. Without doubt, ribosome profiling will soon prove to be a powerful technique to monitor tissue-specific protein synthesis during development or in diseases such as cancer, ageing and neurodegeneration.

William Balch (The Scripps Research Institute, USA) discussed how protein misfolding alters gene transcription through regulation of histone deacetylase (HDAC) activity. In misfolding diseases, this protein homeostasis (proteostasis) network is deregulated. For example, in cystic fibrosis the Phe508 deletion-mutation in the

NBD1 of the cystic fibrosis transmembrane conductance regulator (CFTR) prevents its delivery to the cell surface. This study demonstrated that F508 CFTR was trapped in a complex containing Hsp90 and its interacting partner Aha-1, and targeted for ER-associated degradation (ERAD). Silencing Aha-1 stabilized F508 CFTR at the plasma membrane and restored its activity. Similar results were achieved by treatment with low doses of the HDAC inhibitor SAHA. Mass spectrometry fingerprinting revealed recruitment of new binding partners to F508 CFTR, and that SAHA treatment restored the normal interactome of the mutant receptor. In contrast, treatment with another HDAC inhibitor, TSA, stabilized F508 CFTR but did not restore its normal interactome. These results suggest a link between the proteostasis and epigenetic network that may be used to correct protein misfolding in disease.

Continuing the proteostasis theme, Tali Gidalevitz (Northwestern University, USA) investigated the effect of genetic background on the proteotoxicity elicited by misfolded and aggregated proteins. This is illustrated in amyotrophic lateral sclerosis (ALS), in which disease-causing mutations in SOD1 result in clinically variable phenotypes. This study showed that overexpressing various SOD1 mutant proteins in the body wall muscle of *C. elegans* resulted in the formation of morphologically and biophysically distinct aggregates. The SOD1 mutants caused mild toxicity, which was severely enhanced by the introduction of temperature-sensitive destabilizing mutations into various unrelated proteins in the *C. elegans* genotype. Indeed, at permissive temperatures, SOD1 mutations revealed severe phenotypes caused by the loss of function of these temperature-sensitive metastable proteins. The phenotype was dependent on both the temperature sensitive mutation and the SOD1 mutation. These results demonstrate the modulatory effect of genetic background on the phenotype caused by a SOD1 mutation.

On the final day, Johannes Buchner (Technische Universität München, Germany) presented his findings on the conformational cycle of the molecular chaperone Hsp90. He addressed the question of how the ATP hydrolysis reaction is coupled to conformational changes in Hsp90, which are necessary for substrate binding, and how molecular cochaperones can influence these events. Using fluorescence resonance energy transfer (FRET) the structural rearrangements in yeast Hsp90 were tracked. It appeared that nucleotide binding to Hsp90 induced intermediate conformational states. Kinetic analysis of the Hsp90 cycle revealed that the conformational transitions are slower than the ATP hydrolysis step, and thus represent rate limiting steps. Moreover, it was demonstrated that these structural changes were modulated by cochaperones. Whereas Sti1 blocked the conformational changes of Hsp90 to inhibit its ATPase activity, Aha1 induced structural rearrangements in Hsp90 to accelerate ATP hydrolysis. Surprisingly, Aha1 induced Hsp90 conformational changes even in the absence of nucleotide. Overall, these findings provide evidence that the Hsp90 reaction cycle involves several intermediates which are specifically targeted by molecular cochaperones.

Hsp90 is known to be important in cancer, but other chaperones are also implicated. Michael Sherman (Boston University, USA) discussed the mechanisms by which Hsp72 suppresses oncogene-induced senescence. It was demonstrated that Hsp72 induced cancer cell proliferation by inhibiting the PI3K-activated p53 pathway. However, untransformed epithelial cells were not sensitive to Hsp72, suggesting that the presence of active oncogenes was necessary for these events. Furthermore, it was shown that Hsp72 also controlled p53-independent senescence pathways, as Hsp72 inhibited the Ras-dependent ERK senescence pathway. Upon Ras expression, untransformed cells became sensitive to Hsp72 depletion, resulting in activation of the ERK pathway and senescence. Altogether, these findings demonstrate that Hsp72 controls distinct senescence pathways that are activated by different oncogenes.

The last speaker, Andrew Dillin (The Salk Institute for Biological Studies, USA), discussed the role of proteotoxic stress in neurodegeneration and ageing. Previous studies showed that reducing the insulin/IGF signalling pathway protects against aggregation-induced toxicity in a *C. elegans* model of Alzheimer's disease (AD). This study demonstrated that this is also true in a mouse model of AD with reduced IGF signalling. These mice formed more Aβ aggregates and highly condensed amyloid plaques than control mice. The solubility of Aβ oligomers was reduced. These effects appeared to be mediated by the upregulation of transcription factors downstream of IGF signalling. Whereas induction of HSF-1 promoted the disaggregation of Aβ aggregates for subsequent degradation, upregulation of DAF-16 promoted Aβ peptide aggregation into less toxic high molecular mass aggregates.

The speaker also presented data suggesting that temporal inactivation of the insulin/IGF signalling pathway early during development can reduce aggregate formation and extend lifespan. Similar results could be achieved by dietary restriction and reduction of the activity of the mitochondrial electron transport chain. Altogether, these findings provide evidence that modulation of the insulin/IGF signalling pathway may be an attractive target for AD therapy.

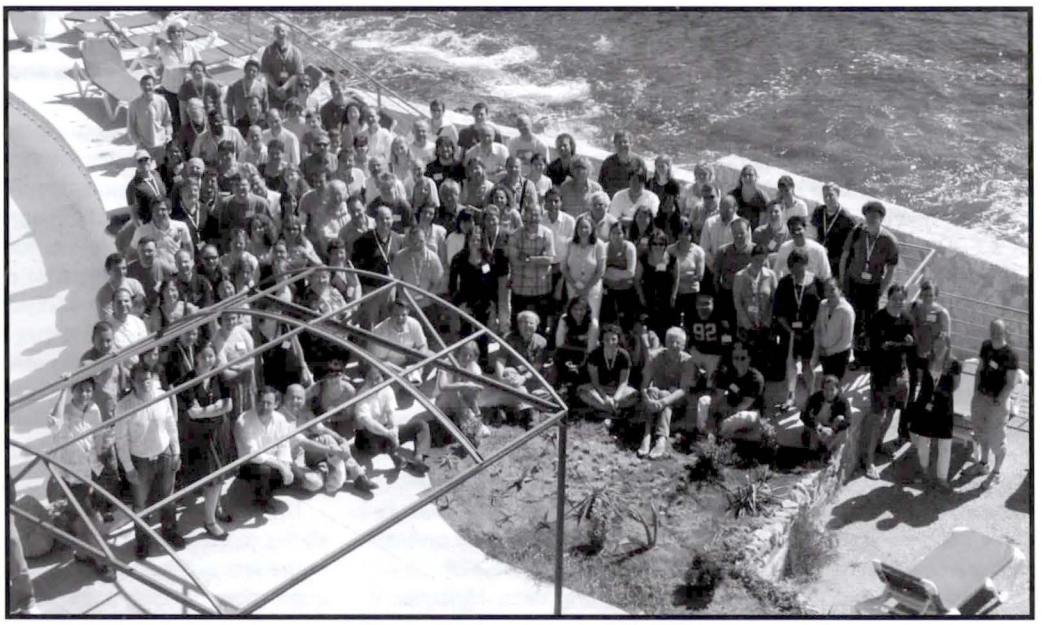
The meeting ended with a well deserved beach party on the shores of the Adriatic. The bravest of us enjoyed a midnight swim in the sea under a lightning-stroked sky, while others exchanged impressions on this superb meeting.

Johanna Rose. UCL
Institute of Ophthalmology

ESF-EMBO meeting on Cell Polarity and Membrane Trafficking

23–28 May 2009; Sant Feliu de Guixols, Spain

The stunning Sant Feliu de Guixols in the Costa Brava and labyrinthesque Eden Roc hotel was the perfect location for this meeting which brought together over 150 scientists working on cell polarity, membrane traffic and vesicle sorting.



Organised by Anne Spang (Biozentrum University of Basel, CH) and Ian Macara (University of Virginia, US), the meeting was at full capacity, with participants from all levels well represented. The meeting started on Saturday evening with the Keynote Lecture, presented by Yuh Nung Jan (UCSF, US) on the ability of axons and dendrites to acquire their distinct properties.

Sunday started with a talk by Kai Simons (Max-Planck- Institute of Molecular Cell Biology and Genetics, DE) on the function of lipid rafts in membrane trafficking and the use of yeast pathways to identify how small changes in lipids can result in changes in sorting. Catherine Rabouille (UMC, Utrecht) gave a talk about unconventional secretion of integrin alpha subunits to the basal side of *Drosophila* follicular epithelial cells. Many of the other talks also described the use of *D. melanogaster* or *C. elegans* in deciphering proteins involved in the establishment of polarity or in trafficking pathyways. Julie Ahringer (Univerisity of Cambridge, UK) discussed cell polarity in *C. elegans* embryos, looking at asymmetric spindle positioning and regulation of pulling forces. A genome-wide screen showed that 32 genes affected spindle positioning. She showed an interesting movie of spindle formation to show the effects of csnk-1 knockdown.

Anne Spang (Biozentrum University of Basel, SWI) presented some excellent movies of early-late endosome transistion in *C.elegans* coelomocytes. Data from her lab showed that Sand-1 is required for Rab conversion through membrane exclusion of a Rab5 GEF leading to inactivation of Rab5. Daniel St. Johnston (University of Cambridge, UK) used the powerful genetics of *Drosophila* to demonstrate that Bazooka/Par-3 is not localized apically with the other apical determinants; the Par-6/aPKC and Crumbs complex. Rather it is phosphorylated by aPKC which excludes it from this complex, resulting in Bazooka/Par-3 localisation at the adherens junction.

George Banting (Univerisity of Bristol, UK), presented an interesting short talk about CD317 which has an essential role in organization of the sub-apical actin cytoskeleton in polarized epithelial cells and is implicated in the release of viral particles in HIV. CD317 is in lipid rafts and it cycles between the cell surface and an internal pool. They showed how CD317 stable knockdown cells caused actin to form tight bundles and form bald or stubby microvilli, however the cells retained the ability to polarize.

Poster sessions were very interactive, and proved to be incredibly useful to all those who presented their data. The range of posters fitted perfectly with the wide scope being covered by the meeting; with data being presented from *Ustilago maydis* to mammals. Discussions regularly continued after the sessions, usually over a glass of sangria.

Gaudenz Danuser (Scripps Research Institute, US) discussed the role of cortical actin during endocytosis in mammalian cells. He showed that actin depolymerisation at the cortex is required preceeding internalization of a clathrin-coated pit, potentially to "soften" the cortex. Repolymerisation of the actin following endocytosis then "mends" the hole. Keith Mostov (University of California, US) explained the morphogenesis of multicellular epithelial structures with the use of the MDCK cell line, showing that PiP2 controls the formation of the apical surface whereas the basolateral is controlled by PiP3. Implanting these lipids into the 'wrong' domain in MDCK cells transforms the identity of that domain into it's opposite within a 5 minute period, showing the

intrinsic balance and control required for correct polarisation. He then proceeded to describe the vast array of further proteins required for lumen formation, Sec15, Sec10, Rab8 and Rab 11, to name a few. Co-Chair Ian Macara continued our trip into mammalian systems, describing his elegant mouse mammary stem cell differentiation programme, which took isolated mammary stem cells and infected them with lentivirus. These were then injected back into the mouse to produce stably silenced Par3 mice revealing the importance of Par3 in normal cell fate specification in mammary gland development.

It was great how much time was allowed for questions and discussion after every talk, which usually led to a lively, informative debate. Similarly, a lot of unpublished data was presented, giving a very up to date impression of this fascinating field.

The half day excursion to Girona gave us some time to explore this picturesque part of Spain further. The final evening and conference dinner festivities were swiftly re-organized to allow the viewing of the Champions League final; resulting in one very happy barman who we can still hear resonating 'Barca! Barca! Barca!'. The close proximity to Barcelona meant that we were able to explore the city before flying back to the UK.

This first meeting was so enjoyable it certainly throws the gauntlet down to the organizers of the next meeting, Catherine Rabouille and Keith Mostov, scheduled for 2012. We would strongly encourage anyone to attend the next meeting and thank the BSCB for our Honor Fell Travel Awards which allowed us to participate in this one.

Anna Townley and Caroline McKinnon, University of Bristol, and Georgina Fletcher, Cancer Research UK.

The 7th ISSCR meeting

14 July 2009; Barcelona, Spain

Thanks to a the Honor Fell Travel Award, I was able to attend and present my work at the 7th ISSCR Annual Meeting, which brought together almost 3000 delegates from all over the world

I arrived a day before the meeting started to attend the international stem cell initiative (ISCI) meeting. This small meeting, coordinated by Prof Peter Andrews, gathers scientists who are doing human embryonic stem cell (hESC) research and aims to standardize hESC culture and differentiation protocols. On the next day, in the opening speech for the ISSCR meeting, this year's president Prof Fiona Watt emphasized the importance and future direction of stem cell research.

I found most of the meeting talks fascinating, in particular the discussion of how stem cells will improve human lives. In addition to the talks, almost 2000 posters were presented, divided into different categories such as iPSCs, differentiation, and adult stem cells. It was a good chance to discuss and meet people who are working in the similar areas which may build up a future collaboration. Also during the presentation, I could meet scientists like Shinya Yamanaka, Rudolf Jaenisch and Sally Temple. One lunch time, I chose to participate in a "meet the expert" session and met Sally Temple who is an expert in brain development. In addition, I met almost 20 Thai scientists who are doing research on stem cells and I hope we can build collaborations in the future. This may accelerate stem cell researches from the other end of the world. From all of these, I am very thankful BSCB for the travel award.

Parinya Noisa; Imperial College London

Knowing me, Knowing you... (a-ha)

Jay Stone

You can't go through life without a few key relationships, such as with your parents, your siblings, your first love etc. All of these interactions have the capacity to shape parts of your life... however, before I start to sound like an agony aunt or a life guru (something I certainly cannot claim to be), I shall bring this back to having relevance to your PhD because I am of course referring to the ever so important relationship you have with your supervisor!

Your supervisor and the rapport you share with them is a very important aspect of your PhD. They act as your guides through academic science and are your ultimate port of call for both successes and problems.

Because we as students know that it is so important, it can often make us feel that there is a lot of pressure and if for any reason we feel the relationship is not working, it can leave us feeling insecure and worried about our work.

However, and I know it can be easy to forget this, your supervisor is primarily just another human being and we as human beings come in all shapes and sizes, all having our own little quirks and neuroses

So baring this nugget of information in mind I am going to attempt to characterise four personality types; their general demeanor, their good points, issues you might have and then offer some advice on how to maintain a healthy relationship.

The Realist

A realist personality needs things to be fool proof and proven beyond all doubt, they need every type of possible control to be done and they need it done several times before they can even begin to think about what the results could mean or where they could lead.

Advantages: Realists can make very good supervisors as they ensure any hypothesis you pursue is well thought through and has the background story to ensure you will get some interesting data for your thesis. They are methodical and never miss a trick, meaning whatever you find should be publishable.

Possible problems: Because a realist needs you to prove what you have found is definite and novel they will request every possible control you can imagine before they become excited by your data. The problem with this is that it can leave you feeling your supervisor does not trust your judgment or practical skills. This could make you lose enthusiasm for your work and become disheartened thinking what you observed was not real and you just recorded it wrong.

How to overcome this: Try to remember they are not asking for you to repeat the experiment because they don't trust you, it is not a personal attack. Their skeptical nature will in fact help you because you'll never pursue a lead that isn't worth it and once you prove your data more strongly it will lead them to get excited about your project and they'll give you some more well thought out direction. If you are still finding it demoralizing to run into your supervisors office and not have your excitement met with the same enthusiasm then remember other people in your lab might be more then willing to discuss your results and join you for a celebratory drink!

The Enthusiast

The enthusiast is pretty much the polar opposite to the realist, they find every piece of data interesting and want to pursue every possible lead. They are great at boosting the morale of the group and if they have the time they are keen to get stuck in to the work themselves.

Advantages: Their love for science and excitement over the data is often contagious meaning if you ever feel your project has hit a dead end they'll have no problem convincing you otherwise. They are full of ideas and always willing to discuss your work.

Possible problems: The problem with having so many ideas is that there doesn't appear to be enough time in the day, this is not necessarily a problem if the enthusiast is still working at the bench because they'll know how long a protocol takes and so appreciate you can't get the data to them the next day. However for those enthusiastic supervisors who aren't in the lab as much this can be a problem because they may not remember a fusion protein can't be made overnight. Another possible issue is that because there are so many ideas you could feel as though you do not have a clear direction and that you are floundering.

How to overcome this: Firstly nobody can work 24 hours a day so it is important that you give yourself a break! The next thing to remember is that your supervisor will give you a whole host of experiments to do but it is up to you, which you deem most important to pursue first. You have to learn to filter the suggestions into what is most time efficient to produce the best figures for your thesis.

The Frequent Flyer

This type of boss could also be referred to as the 'silent partner'. They are often very busy and away from the lab a lot meaning the communication you do have with them needs to be competent.

Advantages: Having this type of supervisor is good for enabling you to find your own feet and really get stuck into your project and where you see it going. It will force you to become more independent, resourceful and confident in your own judgment. You'll often find that because you may have to seek input from elsewhere you'll become good at networking in your field, which could help in the future.

Possible problems: When you first start your PhD or even if you are in your final year but have hit a dead end with your current experiments you can often feel a need for guidance and having a supervisor that is not around very much could leave you feeling a little lost or overwhelmed.

How to overcome: It is important to really make the most of any time you have with your supervisor, schedule meetings for when they are around ensuring a set amount of time which you feel is sufficient to discuss any exciting data or issues you may be experiencing. Try to strike up a good relationship with the post docs in your lab as they will probably need to act as your surrogate supervisor(s). Also remember to utilize other resources in your institute, other labs might use that protocol you are trying to optimize and so might be able to show you how to do it if you are stuck.

The Micromanager

This supervisor really likes to know everything that is going on in their lab, what everyone is doing now, what they are going to do next... even whether there are enough boxes of gloves in the stock room!

Advantages: With this type of supervisor you will never feel as though you do not have direction. You will always know what you should be doing, what you are doing next if that result is what you think it will be and even what the backup plan is if it isn't. They will really engage with what you are doing and are usually more then willing to schedule a last minute chat with you if you need it.

Possible problems: Working for someone like this can be a tad stressful as it could feel like they are constantly on your back asking what you are doing. Another possible problem could be lack of independence, some people find that having a managerial type supervisor can

mean their day, week and month is planned for them and their results are taken in the direction their supervisor feels best.

How to overcome: It is important to remember that not all micromanaging supervisors ask how you are getting on because they are in a rush for the data, they just like to know how things are going and that you are on track so try not to feel too pressured.

Also even though it is important to respect that your supervisor has been working in the field longer then you and knows the types of experiments you need to do to build that story to publish that paper, you also need to engage with your field and develop your own opinions. If there is an experiment you think you should be doing then talk about it with them and say why you think it is worth investigating.

So there you have it, a whistle stop guide to four possible personality types. Now I am not saying that all supervisors will fit neatly into one of these four categories, but hopefully you'll be able to pick out some traits and that in turn could help you maintain that healthy bond you need with your lab head... good luck!

Dear undergraduate and graduate students: hello from your BSCB representative!

Veronika Ganeva

Some of you might have already heard about the role of the PhD and PostDoc representatives, some if you might have not. The BSCB established the position quite recently and it has been the task of the first representative Katie Fisher to define the role of this "post". Even though I believe that with every new person there will be a different interpretation of this definition, one thing is sure - we are there to make things work better. We are there to fill in the gap of communication between students and principal investigators or just to help the younger members of the society to get their message through or bring particular issues to the attention of the BSCB committee. So, on one hand, we are there to make things more efficient by organising initatives, but on the other - we would like to make these initial steps in the world of science just easier and more enjoyable for you.

I believe, I have met quite a lot of you at the last BSCB meeting (The Dynamic Cell), which was held together with the Biochemical Society in Edinburgh in April this year and those of you who attended that conference know that we also try to organise workshops and social events. One example, although it doesn't sound like anything spectacular by itself, is the pub crawl organised together with the Biochemical Society, which all of us found quite enjoyable! It was an excellent oppotunity for people to meet in an informal environment to talk about science and their projects or about topics totally unrelated to science and to bond. Meeting more people in the same situation as yourself might allow you to identify or share problems that you might have and the interaction with PostDocs, who are a bit more experience already, but still young enough to remember those years of hard PhD work, might even help you with taking important decisions for the future. Speaking of careers, during the joint BSCB - BS conference, we could also take the advantage of being given the opportunity to attend events organsed by the BS. The administrative organiser of the conference – Miss Frances van Klaveren did more than an excellent job with her 'careers speed dating event' in which professionals with a science background, but currently working in absolutely different areas were invited to chat with the young conference delegates. This was not only a very enjoyable one hour, but also a very valuable one hour, because you could in a way meet yourself from the future in all the professional faces that you might have - in the suit of a patent lawyer, in the comfy shoes of a product distributer, in the thick-rimmed glasses of a journal editor or in the casual tee of a senior researcher. The event placed not only the delegates, but also the guests in a quite informal, close and convenient atmosphere, where you could ask not only practical questions about CVs, applications and papers, but also explore about the emotional side of these alternative jobs and about the very down-to-earth reasons for taking a path different from pure science. Among the invited professionals were well-known names like Dr. Paul Chapman (Patent and IP law),

Alastair Valentine Philp (Program Principal in the NHS), Lesley Ball (Execute Editor at Portland Press), Claire Ainsworth (Science Journalist), Robert A. Rowney and Rebecca Sowden (Science Teachers), Davin Miller (Sales Manager at New England Biolabs UK) and Geert Kops (Associate Professor at the Universtiy Medical Centre in Utrecht) and even more, which have not been mentioned only due to the length of this list. All presenters were very willing to answer openly all sorts of questions, which made the event not only a very useful, but also a very relaxed, interesting and enjoyable experience. As Dr Chapman had open positions and CVs were welcome, somebody might have even walked away with a job!

Before I attended the workshop I had asked myself why would we be encouraging talented young scientists to choose a different profession and although I knew it from before the answer glowed with a different light this time – we do need qualified professionals from the field to advise the government and the NHS on medical questions, we do need talented biologists to understand the principles underlying a new invention to be patented, and even more so we need people from the field as editors of our favorite scientific journals to keep in check the quality of science. May be we tend to take leaving science for something that reminds of a betrayal or giving up, but that turns out to be quite wrong – sometimes science is not the destination, but an important stop on the way and all these different professions that require a science background support the existence of science and create a symbiotic relationship for a healthy community.

On the following conference day the BSCB PostDoc representative Dr. Sarah McClelland and myself organised a socially oriented event, which ended up with the name 'Collaborathon'. My impression of big meetings has been that sometimes the schedule is extermely busy and the overwhelmingly high number of people make delegates cluster in their own circles, which limits possibilities for new contacts and communication. In that respect Sarah and I thought that it might be useful if we organised an event where people would have a friendly environment and time to talk to each other, especially in the case of PhD students and PostDocs. That's what the Collaborathon was about - we made a random draw of names to pair people up and asked them to intruduce to each other and try to come up with a collaboration on the basis of their current projects or previous knowledge. After one round was completed, we repeated that several times to give opportunity to participants to speak with more people. We were happy to see that in this environment people really felt comfortable to talk to each other and the informal part of the chat was extended beyond what we expected, so often the 15 minutes that we had designated for a round were not enough. Sarah and me also took part in the conversations, initially just because there was an odd number of participants, but then liked it so much that we wanted to go on and were not very happy that time to close the event came.

We had planned this event for PhD students and PostDocs only to facilitate social contacts among the early stage researchers, but luckily there were a few people who didn't read this line on the poster! To our surprise we found out that Principal Investigators and more seniour researchers also turned up and that for all of us that was actually much more fun! The one thing we were a little disappointed about with regard to some of the events was the number of people who showed up, as that was much less that the names on the registration sheets. I would like to take this opportunity to encourage you to participate in future events – they have been organised for you and as we do realise that conferences might be very exhausting, we aim to organise fun and rather relaxing events! If you think that you have a good idea, please do contact us on the emails given on the BSCB website and your idea might turn into reality!

It's is about communication – whether it's something personal that we share with friends, or something professtional - with colleagues. I have definitely felt the need to discuss experiments and ideas not only with my supervisor, but also with my colleagues and often I have found that very helpful. Therefore, I can't stop thinking that it must be even more useful when extended a little bit beyond the walls of our labs or buildings and I think that the BSCB would actually be a very suitable place. Attending a conference for me has been something very insipiring, which gives you many ideas, which opens your eyes for problems and also a place where you could ask for advice. Unfortunately, funding opportunities are limited and many students and even PostDocs do not have the opportunity to travel to meetings that often, which somehow I believe also slows down the pace of research. That's why we have tried to come up with an alternative way to make networking and communication easier - sometimes we don't have to be able to meet physically to discuss, we could meet virtually!

Think about one website, which you have to visit at least three times per day or keep open on the side, which gives you the opportunity to keep up with your friends wherever they are, which lets you follow what is happening smoothly and easily whenever you want and have time for that. Facebook. We are planning to make an official Facebook group for the BSCB! This project still has to be approved and discussed by the BSCB committee, but the idea has been taken very well! There is still quite a lot to clarify - responsibilities, policy, security, legal issues and etc., which means that time will be needed, but we do hope that that in a few months you will be able to join us on Facebook, too!

Don't forget that we are there and that you can contact us!

Yours, Veronika

BSCB / BSDB Joint Spring Meeting

12–15 April 2010, University of Warwick

The Joint Spring Meeting of the BSCB and BSDB is to take place in Warwick between the 12th and 15th April 2010. The meeting promises to be a exciting blend of cell and developmental biology with a bit some something to tempt everyone to attend.

The two main themes running through the meeting are **Understanding Disease at the Cellular and Organism Level** and the **Celebration of the 10th Anniversary of the First Draft of the Human Genome**.

The scientific organisers for the BSCB are **Paul Andrews** (Dundee) and **Elizabeth Fisher** (UCL); the organisers for the BSDB are Kate Lewis (Cambridge) and Josh Brickman (Edinburgh). The two plenary lectures that open the conference are by the illustrious Professor Elaine Fuchs (Rockefeller) and Professor Mike Levine (UC Berkeley). The speaker line up is excellent and the sessions include two on Stem Cell Biology and Regenerative Medicine; Limb Development - Classical Development in a Post-Genomic Era; Evolution and Development - Genomes and Beyond; Cell Models of Disease; Genomic Science - Achievement and Challenges; Mechanisms of Gene Regulation; The Genome and Disease; Interactions of Signalling Pathways and Macromolecular Complexes, Organelles and Trafficking.

As always there will be a call for abstracts to present short talks that will intersperse between invited speakers and of course plenty of poster slots to fill. Following the success of the lunchtime workshops in previous years these will be repeated - expect updates on the content of these closer to the time. Our Postgrad and Postdoc reps will undoubtedly be organising some social activities. It promises to be a fantastic meeting, and hope to see more of you there than ever before.

Details on speakers, venue, bookings and so on can be found by visiting the website.

Paul Andrews, Scientific Co-organiser

2010 BSCB Programme Outline

12th Monday

Evening

Plenary Lecture: Elaine Fuchs, NY, USA

13th Tuesday

AM: Stem Cell Biology and Regenerative Medicine I

Chair Dr. Paul Andrews
Austin Smith, Cambridge, UK
Ihor Lemichka, NY, USA
Peter Andrews, Sheffield, UK
Christine Mummery, Utrecht Netherlands
Plus 2-3 short talks selected from abstracts

PM: The Genome and Disease:

Eric Miska, Cambridge UK
Adrian Bird, Edinburgh, UK
Mandy Fisher, London, UK
Alexander Meissner Boston, USA
Plus 2-3 short talks selected from abstracts

14th Wednesday

AM: Cellular Disease Models

Chair Professor Elizabeth Fisher
Birgit Lane, Singapore/Dundee UK
Colin Stewart Singapore
Gipi Schiavo, London
Isabella Graef, Palo Alto, USA
Plus 2-3 short talks selected from abstracts

PM: Macromolecular Complexes, Organelles and Trafficking

Jean-Paul Vincent, London UK
Mike Fainzilber, Rehevot, Israel
Beate Sodeik, Hannover, Germany
Jan van Minnen, Calgary Canada
Plus 2-3 short talks selected from abstracts

15thThursday

AM: Stem Cell Biology and Regenerative Medicine II

Melanie Welham, Bath Uk
Fiona Watt, London, UK
Kevin Eggan, Boston, USA
Geoff Raisman, London, UK
Plus 2-3 short talks selected from abstracts

Forthcoming meetings

2009

5–9 December
ASCB 49th Annual Meeting
San Diego, USA
www.ascb.org

11 December
Actin 2009
Bristol, UK
www.bristol.ac.uk/biochemistry/actin2009/

16–18 December 2009
Biochemical Society Annual Symposium: Organelle biogenesis and positioning in plants
University of Chester
www.biochemistry.org

2010

7–8 January
The biology and pathology of tau and its role in Tauopathies
Robinson College, Cambridge
www.biochemistry.org

11–12 January
Experimental approaches to protein:protein interactions
University of Sheffield
www.biochemistry.org

12–17 January
Protein and lipid function in secretion and endocytosis
Goldegg am See, Austria
www.embo.org

22–24 January
RNA UK 2010
The Burnside Hotel, Cumbria
www.rnasociety.org

3–5 March
EMBL Workshop on Visualizing Biological Data (VizBi)
Heidelberg, Germany
www.embo.org

6–9 May
Cell guidance signals in cancer
Camogli - Portofino Vetta, Italy
www.embo.org

13–14 May
Lysosomes in health and disease
Charles Darwin House, London
www.biochemistry.org

19–23 June
International meeting on chromosome segregation and aneuploidy
Royal College of Surgeons, Edinburgh
www.biochemistry.org

19–24 June
The cytoskeleton in development and pathology
Djurhamn, Sweden
www.embo.org

28–30 June
The Physical Cell – In search of the design principles of life
University College, London

28 June – 01 July
Microscience 2010
Excel Centre, London
www.rms.org.uk

22–27 August
14th International Congress of Immunology
Kobe, Japan
www.ici2010.org/

4–7 September
The EMBO Meeting 2010
Barcelona, Spain
www.embo.org

8-12 September
Harden conference: Autophagy: from molecules to disease
Royal Agricultural College, UK
www.biochemistry.org

22–25 September
Chemical Biology 2010
Heidelberg, Germany
www.embo.org

3–8 October
ESF-EMBO Symposium: Emergent properties of the cytoskeleton: molecules to cells
Sant Feliu de Guixols, Spain
www.embo.org

2126 November
ESF-EMBO Symposium: Molecular perspectives on protein-protein interactions
Sant Feliu de Guixols, Spain
www.embo.org

BSCB MEETINGS

Check www.bscb.org for full details.

BSCB Spring meeting 2010

BSCB / BSDB Joint Spring Meeting
12–15 April 2010
University of Warwick.
Organizing committee for BSCB are Paul Andrews (Dundee) and Elizabeth Fisher (UCL)
See page 33

BSCB Autumn meeting 2010

Cell organisation through the cell cycle
5–7 September, 2010
St Catherine's College, Oxford.
Organising committee: Alison Lloyd, Buzz Baum, Gwyn Gould, Iain Hagan

Society business: President's report

Clare M. Isacke, July 2009

This has been an active year for the BSCB. For those of you who attended, I am sure you will agree that both of the meetings we held were a great success.

In Autumn 2008, Charles Streuli and Vania Braga organised a sell-out Epithelial Cell Biology Conference in Greenwich. All who attended commented on the excellence of the talks and the out of session discussions and on the beautiful Greenwich surrounds. Most complained about the dismal 2008 weather.

Thankfully the joint Spring 2009 meeting in Edinburgh enjoyed Scotland at its sunny best. Not that good weather was needed to make this an excellent meeting, the range and enthusiasm of the speakers and audience was more than enough to make this a memorable occasion. In particular the 2009 Hooke Medal winner Erik Sahai gave a beautiful talk on tumour cell motility *in vivo*. I would like to thank Margarete Heck and Andrew McAinsh from the BSCB who, together with Robert Insall and Barbara Reaves from the Biochemistry Society, making this meeting such a success. In addition, thanks also go to our PhD and PostDoc representatives, Sarah McClellan and Veronica Ganske, for organising the Collaboration to promote scientific networking and the hugely appreciated Delegates Guide to the Edinburgh.

Meetings aside, the BSCB has been very active on a number of other fronts. For the first time in 2008 the BSCB, organised a Summer Studentship scheme to allow undergraduates to gain valuable work experience in a research laboratory. You will have read about what these students got up in the previous BSCB newsletter. If you missed it, don't forget that you can download previous issues from our website. The good news is that these studentships were so popular and appreciated that we have run the scheme again. As I am writing, there are 5 more students beavering away in Bristol, Edinburgh, Leicester, York and Sheffield.

Another innovation was the launch of the BSCB Science Writing Prize for PhDs and PostDocs. With hot competition, this year's winner was Emily Prichard for her essay "Untangling the String" in which she describes the challenges of understanding the role of chromatin condensation in Cornelia de Lange Syndrome. We were lucky to be able to recruit Tim Radford, the former science editor of The Guardian newspaper, as the judge and if there is anyone who knows about good science writing it is Tim. He applauded Emily for managing to so clearly set out the scientific problem and managing to sustain the readers interest throughout the essay. Feel inspired? If so, please start scribbling and enter this year's competition David - not sure what the deadline is. Am guessing there is info in this newsletter but if this is too late, please delete last sentence.

At the Annual General Meeting in Edinburgh, two new BSCB committee members were formally ratified, Buzz Baum (London) and Ewald Hettema (Sheffield). They replace three departing committee members Jon Pines, Tony Ng and Kairbaan Hodivala-Dilke. Jon was our Membership Secretary, Tony the Website Co-Ordinator and Kairbaan the Meetings Secretary. On behalf of the BSCB I would like to thank Jon and Tony for all their hard work and contributions the society. But special thanks must go to Kairbaan who was the driving force behind the smooth running of our meetings over the past 5 years and who calmly and efficiently dealt with all manner of problems and crises associated with any international gathering of scientists. Fortunately these jobs within the society have been handed over to able successors, Dan Cutler (Membership), Paul Andrews (Website) and Andrew McAinsh (Meetings). Their details are in this newsletter and on the website so please contact them with suggestions and comments. We are also very grateful to all the

organisations who generously sponsor our activities, in particular the Company of Biologists, who generously under-write our meetings and travel awards.

What will the next year bring? Some of you will be going to the ISDB meeting in Edinburgh this September being organised by the British Society of Developmental Biology. BSCB is running a session on Asymmetry in Cell and I hope you will be supporting that. In Spring 2010 we will be joining with the BSDB in Warwick for a meeting organised by Paul Andrews and Elizabeth Fisher that will have a strong Stem cell theme. As I mentioned above we will continue to run the Undergraduate Summer Studentships and the Science Writing Prize. We also look forward to the continuing input from our PhD and PostDoc representatives who have already showed such enthusiasm and originality in getting our younger society members involved at our conferences.

I would like to end on is a plea. These are tough times for UK science as the funding cuts hit us all. Consequently it is increasingly important that the cell biology community help and support each other. As members of the BSCB you can do this in various ways. You can share your opinions, news and even rants by contributing to the newsletter. You can become a BSCB Ambassador if your department doesn't already have one. Our Ambassadors do a great job in advertising our meetings, encouraging new members of their departments to join the society, and contributing through their opinions on all matters cell biological. Most of all, send us your ideas and opinions as to how the society can help and inform cell biologists at all stages of their careers. We want to keep cell biology going strong - for this we need your help.

Clare M. Isacke, London, July 2009

The British Society for Cell Biology

Statement of Financial Activities for the year to 31 December 2007

	2007 Unrestricted £	2007 Restricted £	2007 Total £	2006 Total £
Incoming resources				
Incoming resources from generating funds				
Voluntary income:	25,000	25,000	50,000	45,000
Incoming resources from charitable activities:				
Meetings	9,235	–	9,235	171,248
Subscriptions	28,679	–	28,679	29,068
Investment income:				
Bank interest	10,765	–	10,765	3,757
Other incoming resources	900	–	900	
Total incoming resources	**74,579**	**25,000**	**99,579**	**249,073**
Resources expended				
Charitable activiites:				
Grants payable:				
Honor Fell travel awards	–	27,899	27,899	16,732
Costs of meetings	21,079	–	21,0790	183,968
Newsletter costs	5,794	–	5,794	5,555
Website expenses	5,943	–	5,943	2,513
Governance costs	4,950	–	4,950	3,942
Total resources expended	**38,766**	**27,899**	**65,665**	**212,710**
Net movement in funds for the year	**36,813**	**(2,899)**	**33,914**	**36,363**
Reconciliation of funds				
Funds brought forward at 1 January	181,213	3,268	184,481	148,118
Funds carried forward at 31 December	**218,026**	**369**	**218,395**	**184,481**

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.

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**

Applications should be sent to:

Jordan Raff
Dunn School of Pathology
University of Oxford
South Parks Road, Oxford OX1 3RE

Application for Honor Fell/Company of Biologists Travel Award

Please complete, print out and send to Jordan Raff 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:

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

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BSCB Ambassadors 2009

The Society has representatives at each of the institutions listed below. The Ambassadors have agreed to promote Society activities and membership within their University or Institute.
They disseminate advertisements concerning future BSCB meetings, promote the advantages of membership, particularly to new PhD students, and are available to sign application forms and answer any BSCB-related questions. If your institute is not represented and you would be willing to become and ambassador, please contact Jonathan Pines.

City/ Institute	Ambassador	Contact
Aberdeen	Anne Donaldson	a.d.donaldson@abdn.ac.uk
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