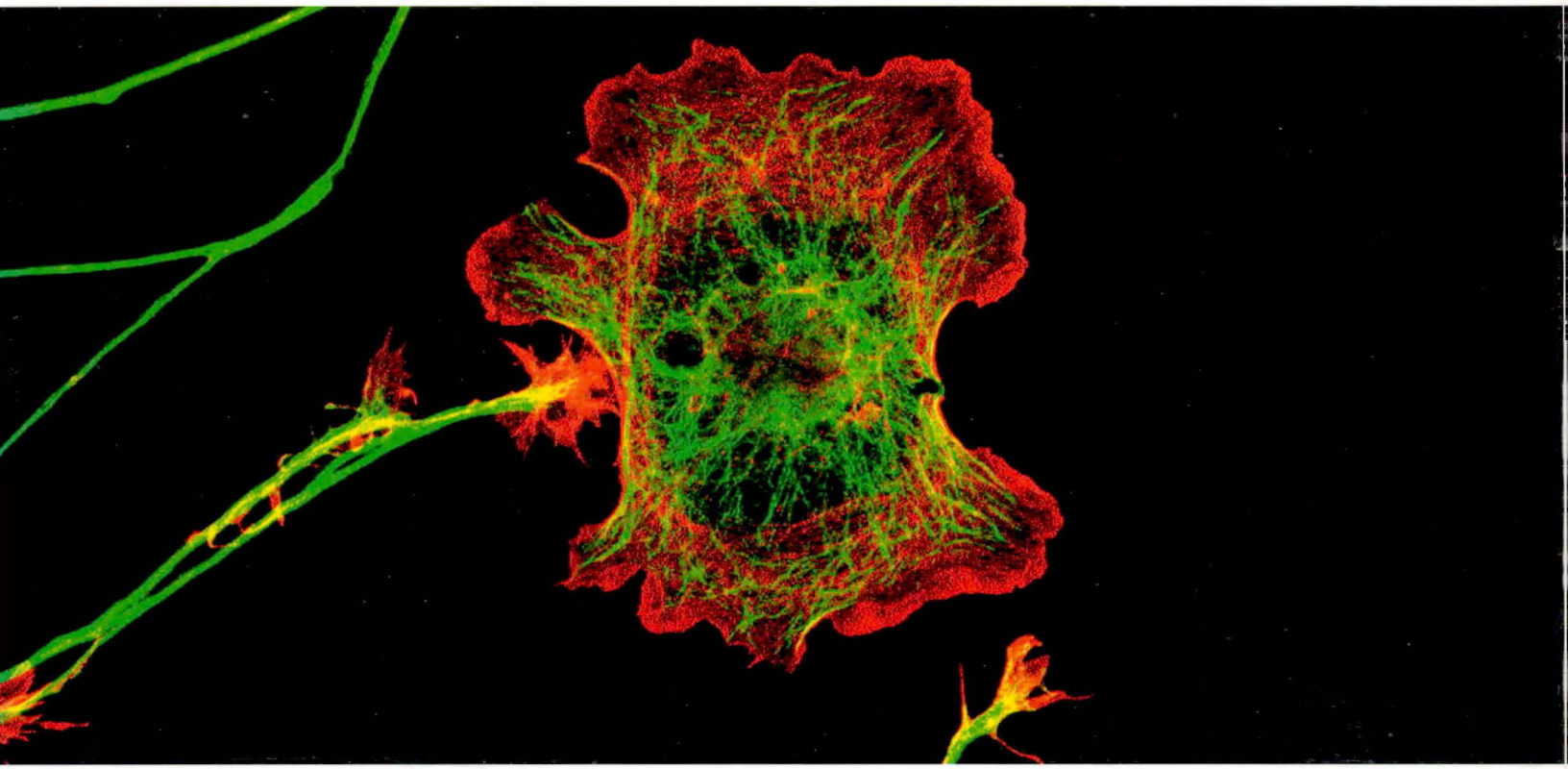
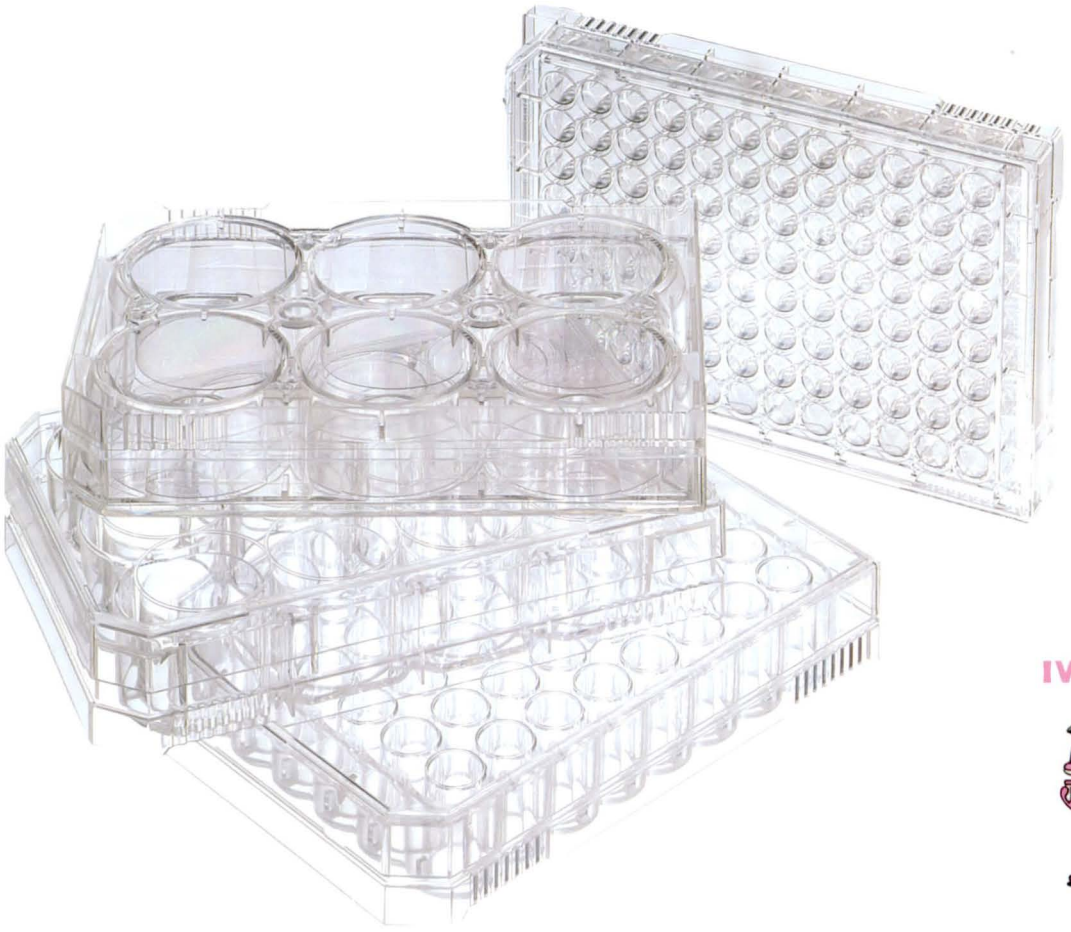


BSCB Newsletter

Summer 2004

British Society for Cell Biology

Well endowed



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- Alphanumeric labelling
- Also available coated in Collagen type 1 and Gelatin to promote differentiation of cultured cells
- Iwaki range includes ELISA and assay plates
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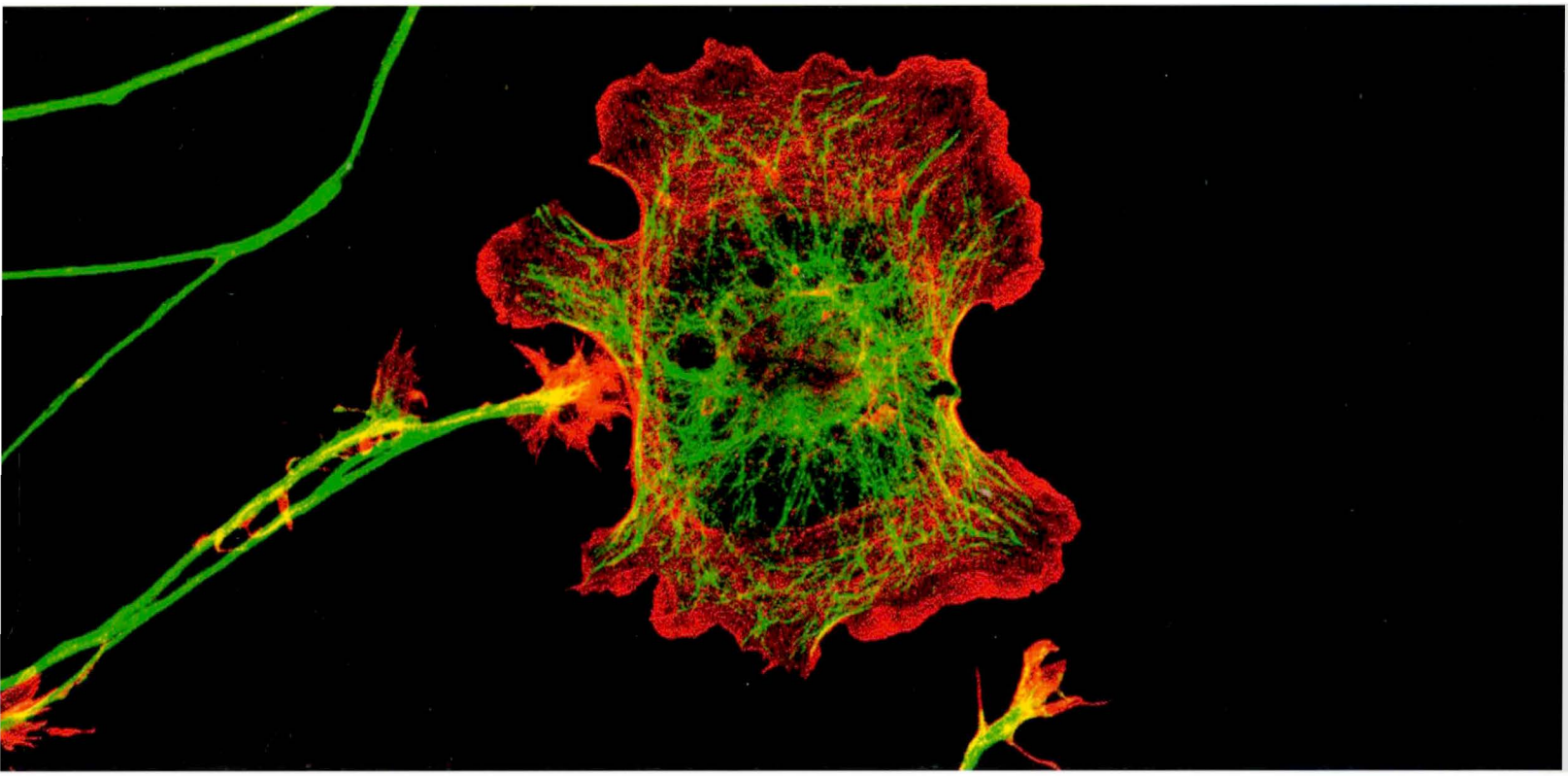
Barloworld Scientific



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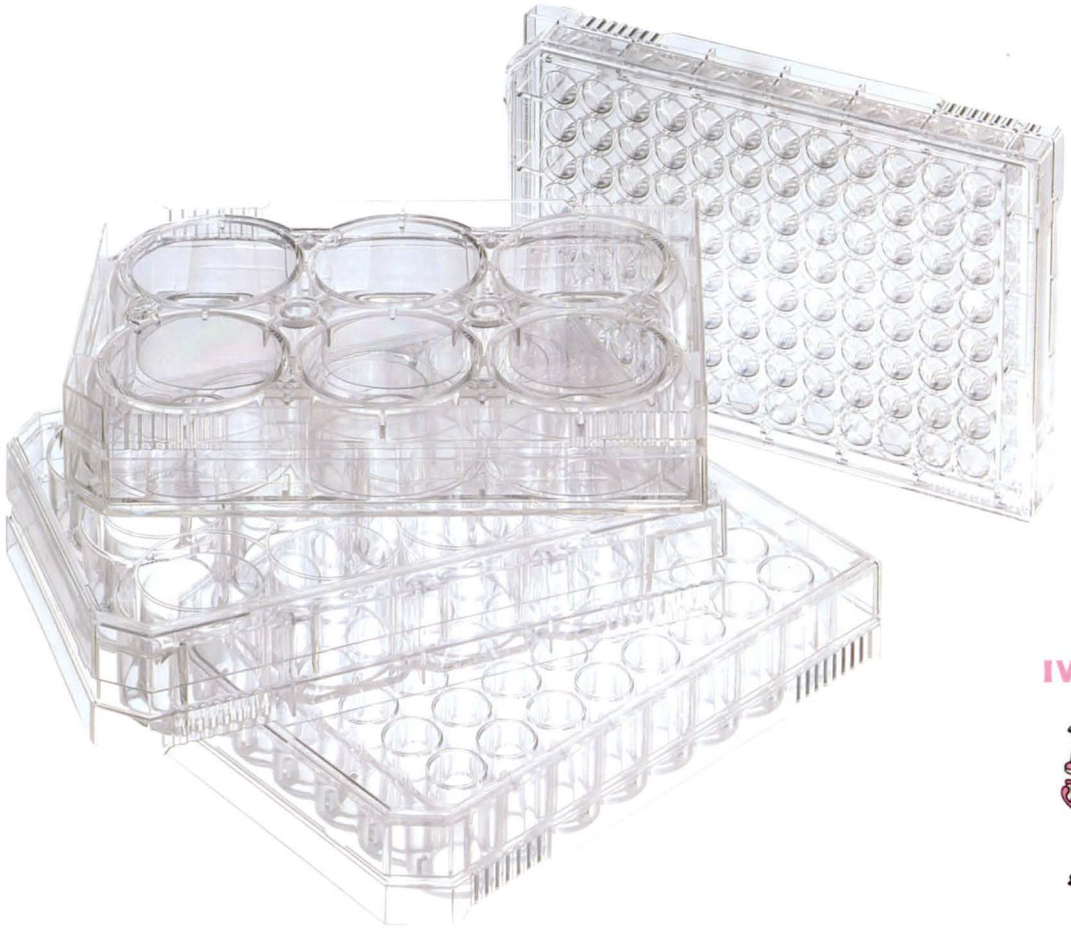

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Barloworld Scientific

BSCB Newsletter
Summer 2004

Editorial

We had some anxious moments about whether we would have sufficient participants at this year's Spring Meeting, given that we were 'on our own' but our fears were groundless. There were 304 registered attendees and a record number of posters. The new feature of lunchtime discussion meetings, on careers and women in cell biology, were very well received and will be repeated in the future. Reports of all these appear in the Meetings section. This newsletter also contains the text of Lord Sainsbury's plenary address, for those who were unable to attend.

There are some changes to the committee and to various officer's positions, listed on the News pages. The Features include a vivid account of life at the Paterson Institute and a description of the Leeds University Histology website, as well as an update on the first year of the Biosciences Federation.

This year's Autumn meeting is entitled Cell Cycle Regulation of Meiosis. All the speakers have accepted their invitations and you are encouraged to register as soon as possible: details towards the end of the newsletter. Next year's Spring meeting will again be a joint venture with the BSDB at Warwick University and the theme will be The Asymmetric Cell.

We have only two book reviews in this issue, but plenty of books available, so please contact me if you would like a free book in exchange for writing a brief review.

The Editor

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News

Features

Meeting Reports

Book Reviews

Forthcoming Meetings

Society Business

Forms

News

Scientific publications: who pays and how much?

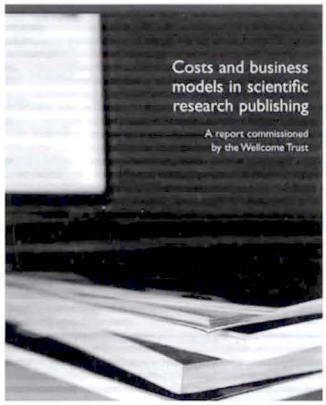
The debate about Open Access publishing continues, with proponents both for and against airing their views.

In September 2003 the Wellcome Trust published 'Economic analysis of scientific research publishing', a report it had commissioned from SQW economic and management consultants to investigate the complex market of scientific publishing. The conclusions that the Trust drew from the evidence presented in that study persuaded it to make public its support for publishing the results of scientific research in an open access format.

In response to ongoing discussions about the viability of open access publishing, the Trust commissioned a follow up report from SQW to assess the actual costs of publishing scientific, technical and medical research in peer-reviewed journals. It compares the costs between the current 'subscriber-pays' model, where publishing services are free to authors and the article is published in a journal available via subscription, and an 'author-pays' model where the author (or their funder or institution) pays for the publishing services but where the final paper is published in an open access journal, available for free via the Internet to all who wish to use it. A copy of the report is available at http://www.wellcome.ac.uk/en/1/awtpubrepcos.html

Meanwhile, the House of Commons Science and Technology Committee is conducting an enquiry into Scientific Publications in the UK. They have heard evidence from the main scientific commercial publishers and from those favouring exclusively open access models, as well as from the librarians. Uncorrected transcripts of all these are available at http://www.publications.parliament.uk/pa/cm/cmsctech.htm#evid.

The Committee should publish its report this summer.



Changes on the BSCB committee

This year there have been several changes to the BSCB committee. We have four new members, Liz Smythe, Vania Braga, David Stephens and Margarete Heck. Their details may be found on the Committee page at the end of the newsletter. Kathryn Ayscough and Charles Streuli have resigned after many years of hard work on behalf of the Society.

Kathryn's duties as Honor Fell Travel Secretary have been taken over by Jordan Raff, who will also manage the Honor Fell Undergraduate and the Eastern European bursary schemes; application forms may be found at the end of the newsletter and people requiring more information should contact Jordan. Kairbaan Hodivala-Dilke has been working with Charles Streuli on the meetings programme for some time and was responsible for the very successful Spring meeting.

Clockwise from top left: Liz Smythe, Vania Braga, David Stephens and Margarete Heck.

New recruits always welcome

Please note that any BSCB members can nominate themselves or fellow cell biologists for election to the committee. Each person should have a nominator and a seconder. We are looking for committee members who represent a good spread of interests and geographical location and who, above all, will make a POSITIVE contribution to the running of the BSCB.

Nominations should be sent to the BSCB Secretary, Michael Whitaker, and are welcome throughout the year. Committee meetings are held at the Spring meeting, then once or twice more during the year.

BSCB Ambassadors

The Society has instigated a new scheme of appointing 'ambassadors' to promote Society activities and membership within their university or institute. Over 80% of the Society's membership works within 34 institutions and so far 22 of these are represented on the scheme. BSCB Ambassadors disseminate email advertisements concerning future BSCB meetings, promote the advantages of BSCB membership, particularly to the new PhD student intake, and are available to sign application forms and answer any other BSCB-related queries.

City/Institution	*Representative*	*E-mail*
Aberdeen	Denys Wheatley	wheatley@abdn.ac.uk
Bath	Geoff Holman	g.d.holman@bath.ac.uk
Birmingham	Rob Insall	R.H.Insall@bham.ac.uk
Bristol	Harry Mellor	H.Mellor@bristol.ac.uk
Cambridge	Jon Pines/Paul Luzio	jp103@cam.ac.uk
Dundee	Angus Lamond	a.i.lamond@dundee.ac.uk
Durham	Roy Quinlan	r.a.quinlan@durham.ac.uk
Edinburgh	Bill Earnshaw	Bill.Earnshaw@ed.ac.uk
Glasgow	Steve Winder	s.winder@bio.gla.ac.uk
Guildford	Tom Wileman (Pirbright and all BBSRC)	thomas.wileman@bbsrc.ac.uk
Imperial	Vania Braga	v.braga@ic.ac.uk
Cancer Research UK (LIF)	Fiona Watt	f.watt@cancer.org.uk
Kings/Guys	Simon Hughes	s.hughes@kcl.ac.uk
Leeds	Michelle Peckham	m.peckham@leeds.ac.uk
Manchester	Charles Streuli	charles.streuli@man.ac.uk
NHLI etc	Clare Isacke	c.isacke@icr.ac.uk
Norwich	Peter Shaw/Grant Wheeler	grant.wheeler@uea.ac.uk
Newcastle	Michael Whitaker	michael.whitaker@newcastle.ac.uk
Queen Mary	Mark Turner	m.d.turner@qmul.ac.uk
Sheffield	Liz Smythe	e.smythe@sheffield.ac.uk
UCL	Mark Marsh	m.marsh@ucl.ac.uk
York	John Sparrow	jcs1@york.ac.uk

Laboratory News Awards

Entry forms are now available for the 2004 Laboratory News Awards. Presented in recognition of achievements by laboratories and individuals, these Awards are fast becoming an industry standard. The Laboratory News Awards are sponsored by some of the industry's leading suppliers, including Thermo Electron Corporation, VWR International and Sysmed. This year, the Awards ceremony will coincide with a new industry event, The Laboratory News Forum, taking place at Birmingham's ICC Conference Centre on 18-19 October 2004. This will feature courses, product briefings, a keynote address and an exhibition, all designed to keep the laboratory professional up-to-date with the latest techniques and products. More information about the Awards and Forum can be found at www.labnewsforum.co.uk.

Poster prize

The winner of the poster prize was B Strauss, Department of Anatomy, University of Cambridge, with a poster entitled 'Cell shape controls spindle orientation in the *Xenopus* blastula'. 2nd prize went to R Marlow, School of Biological Sciences, University of Manchester, with a poster on 'Integrin-linked kinase is required for cytokine signalling and cellular differentiation in mammary epithelium'. The 3rd prize was awarded to A.Duckmanton, Department of Biochemistry and Molecular Biology, UCL, with the poster 'The cellularisation of mamalian myotubes by myoseverin'.

ELSO

The European Life Sciences Organisation has launched a petition to Brussels to 'reduce paperwork and boost funding'. www.elso.org

In brief...

Cell Motility

This book, developed from the BSCB Abercrombie meeting in September 2001, has now been published. BSCB members are entitled to a 20% discount. In addition, the Society has some copies available at the bargain price of £20: contact Anne Ridley (anne@ludwig.ucl.ac.uk).

Cheaper journal subs for members

Did you know that BSCB members are entitled to discount subscriptions for several journals? Details are on page 36.

Honor Fell Travel Awards

Young BSCB members, either PhD students or post-docs, attending scientific conferences relevant to cell biology are eligible to apply for financial support in the form of an Honor Fell travel award. Full details are on the application form at the end of the Newsletter. Jordan Raff is now managing the Awards programme. Key points to note are that all applicants must present a poster or talk at the meeting they attend. We also ask all successful applicants to write a short report of their trip for the newsletter.

Funding for local meetings

The Society is prepared to provide limited financial support for meetings organized by any local interest group relevant to cell biology. Requests for funds should be sent to the Treasurer, Mark Marsh (see page 34), accompanied by a report of a previous meeting. If a meeting receives such support, a report of the meeting will be required for publication in the Newsletter.

BSCB Membership Database

The website contains the facility to search for members of the Society. However, under the Data Protection Act, we can include your details only if you specifically grant us permission to do so. If you wish to be included and are not, please contact Margaret Clements (zoo-jeb01@lists.cam.ac.uk).

Schools News

Association for Science Education Annual Meeting University of Reading, January 2004

The BSCB presented three talks at this well attended ASE meeting. Sarah Cant and Jenny Bond, members of the Society who had both attended schools in the Reading area as pupils, gave illustrated talks. Sarah spoke about cell signalling and illustrated it using the cyclic GMP and sydenofil (Viagra™) pathway as an example. The presentation sub-heading "when NO means yes" elicited amusement and the fact that florists can use Viagra™ to reverse drooping in flowers produced surprise. Jenny's talk was illustrated with a beautiful image showing the structure of an apoptosome.

As the BSCB Schools Liaison Officer, I talked about the great importance of that part of the cell cycle that is not mitosis, and also about the idea behind the event and the notes.

Copies of the notes relating to the talks were given to the audience of 41. They were also sent to publishers of 'A' level textbooks and to examination bodies. It is heartening to hear that two publishers have noted the BSCB requests and will be adjusting future texts accordingly.

Officers of the European Molecular Biology Organisation (EMBO) Science and Society Programme have also expressed an interest in our request to teachers and wish to link to our website.

David Archer (BSCB Schools Liaison Officer)

Science Learning Centres

The Wellcome Trust and central Government have financed the setting up of one National and nine Regional Science Learning Centres (RSLCs). The SLCs have been established for the continuing professional development of science teachers. The National and residential purpose built centre at the University of York is due to open in autumn 2005.

The RSLCs located at other universities are due to start operating in autumn 2004; these are at the universities of Southampton, Hertfordshire, Sheffield Hallam, London Institute of Education (Univ. of London), Manchester Metropolitan (at Didsbury), Leicester (Universities of Leicester and Nottingham), Keele and Durham plus one, so far unnamed, in the south-west.

It is intended that all the centres will network and each willl make its specialist knowledge available to all the other centres. The Southampton SLC is the only one with a link to a hospital. At its last committee meeting, the BSCB agreed to supply information about cell biology to the University of Southampton RSLC. It is hoped that this link with the Science Learning Centres will benefit both teachers and then pupils and will enable the BSCB to disseminate authoritative information effectively.

www.sciencelearningcentres.org.uk

The Paterson Institute, Manchester

Dynamically led by Professor Nic Jones and driven by over 200 members of staff, the Paterson Institute for Cancer Research (PICR) is an expanding hotbed of research. Modern furbished open-plan laboratories house a range of exciting studies undertaken by a host of internationally acclaimed researchers.

Fiona MacIver

The Paterson Institute sits neatly coalesced with the largest specialist cancer hospital in Europe, Christie Hospital, amongst the tree-lined avenues of South Manchester. The links between the two extend beyond a physical connection. Clinicians and scientists work together in many different ways – education, the interchange of ideas, sample swap (bedside to bench, bench to bedside), and clinical development and the application of laboratory research. Indeed, nearly half the groups within the institute contain clinical fellows and/or research nurses. The Immunology Group and the Carcinogenesis Group are just two of the groups that have developed therapies to the point of a clinical trial. Work, for example, on the 5T4 oncofetal antigen has led to a clinical trial in late-stage colorectal cancer patients.

Supporting and nourishing the translational research is a significant commitment to basic research. This is carried out in a number of model systems, including different types of yeast, frog, cell lines (mouse, human, stem cell) and mice. The Cell Division group led by Professor Iain Hagan utilises the fission yeast *Schizosaccharomyces pombe* to study the intricacies of how cells divide. They are identifying genes that are required for the correct formation of the mitotic spindle and also studying the G2/M switch that is key to the process of chromosome segregation. The Stem Cell and Haematopoiesis Group exploits the *in vitro* differentiation potential of embryonic stem cells to investigate the relationship between mesodermal precursors and the hemangioblast and to define the molecular and cellular mechanisms that regulate lineage commitment of this earliest known blood precursor.

The diversity of disciplines pursued at the institute covers the range of basic and translational research. Experts in genetic analysis, biochemistry, cell biology, chemistry and biophysics interact, enriching the tools available to the researcher. Found in the same building, the same seminars and around the same pub tables are people from the Radiochemical Targeting and Imaging Group, the Gene Therapy Group, the Mitotic Spindle Function Group and the Cellular and Molecular Pharmacology Group, amongst others.

One group that particularly interacts with many others is the Bioinformatics and Onco-informatics group run by Dr Crispin Miller. They aim to provide solutions to biological problems arising within the institute and are particularly interested in combining information from mouse, yeast and human models. Much of the group's current effort is devoted to developing an integrated microarray database facility to support the CRUK Affymetrix™ system housed within the Paterson's Molecular Biology Core Facility.

This Facility is just one of many excellent services provided to high standard at the PICR. A centre of expertise, it offers much more than simply automated sequencing of DNA and reflects the strong commitment to centrally provided services that the institute has. Other services include flow cytometry, advanced imaging and ultrastructural imaging. The institute benefits from a well-stocked library and an active computing unit. The institute is also able to take advantage of its place within the wider CR-UK family and the concomitant access to services such as oligonucleotide synthesis, mass spec services and monoclonal antibody preparation.

A committed and enthusiastic education coordinator, Dr Graham Cowling, nurtures the plethora of postgraduate education undertaken at the Paterson. An Education Committee, made up of senior scientists, postdoctoral fellows and student representatives, assesses proposed student projects and then continuously monitors the students throughout their years of study. Such a programme, combined with the assignment of an advi-

sor in addition to the supervisor for each student, ensures no student is left unsupported.

Seminars provide a means of continuing education. Supplementing the PICR seminar series are those run by the Christie Hospital. The physical connection with the hospital makes it easy to attend these seminars and regular postings of seminars organised by the University of Manchester offers further exposure to the latest in research developments. Regular PICR internal speakers are heard over coffee and cake. These seminars offer an opportunity for students and postdoctoral fellows in particular to share their results and hone their communication skills. A rich array of external speakers from diverse fields fires enthusiasm, with top-notch researchers from around the globe coming to share their work.

Some of the recent notable speakers included: Professor Gerard Evans (Cancer Research Institute, UCSF, USA), an expert on apoptosis, who described the role of c-Myc-induced apoptosis in relation to the development of cancers *in vivo*; Professor Tian Xu (Howard Hughes Medical Institute, Yale University, USA) who discussed the use of a genetic screen to identify overgrowth mutations in mosaic flies; Professor David Garrod (Manchester University) who talked about desmosomal adhesion during development and disease; and Dr Buzz Baum (Ludwig Institute for Cancer Research, London) who described an RNAi screen to identify genes and pathways that regulate actin-dependent morphogenesis in *Drosophila*.

A concentration of seminar activity occurs in September each year when members of the institute gather in the Lake District for the annual colloquium. This coincides with the arrival of new postgraduate students and provides a great opportunity for people within the institute to get to know each other and their work.

Many international workers come to visit or work in the Institute, further enhancing its reputation. The Paterson has a close relationship with the University of Manchester (soon to be one of the largest universities in Europe with the merging with UMIST) and industrial partners (including Astra-Zeneca, Amersham International, Amgen, Oxford Biomedica, Pharmacia and Glaxo-Wellcome).

The scientific interactions are underscored by the availability of many social diversions within the institute. The postgraduate student body is very active and will introduce the newcomer to many of the delights of Manchester life. Bar rallies, weekly sports games and pursuits, clubbing, nights spent soaking up Manchester's famous music scene or partaking of the plentiful supply of quality Mancunian theatre, intranet noticeboards – all are a feature of institute life, there for whatever takes your fancy. PICR is well situated for facilitating different interests owing to its proximity to the thriving nightspots of central Manchester and Didsbury, and its short distances to beautiful countryside whether that be the Peak District, Yorkshire, North Wales or the Lakes.

By Fiona MacIver
Paterson Institute

Feature articles

If you would like to see a profile of your institute or department featured in the newsletter, please contact Joan Marsh (details on page 34).

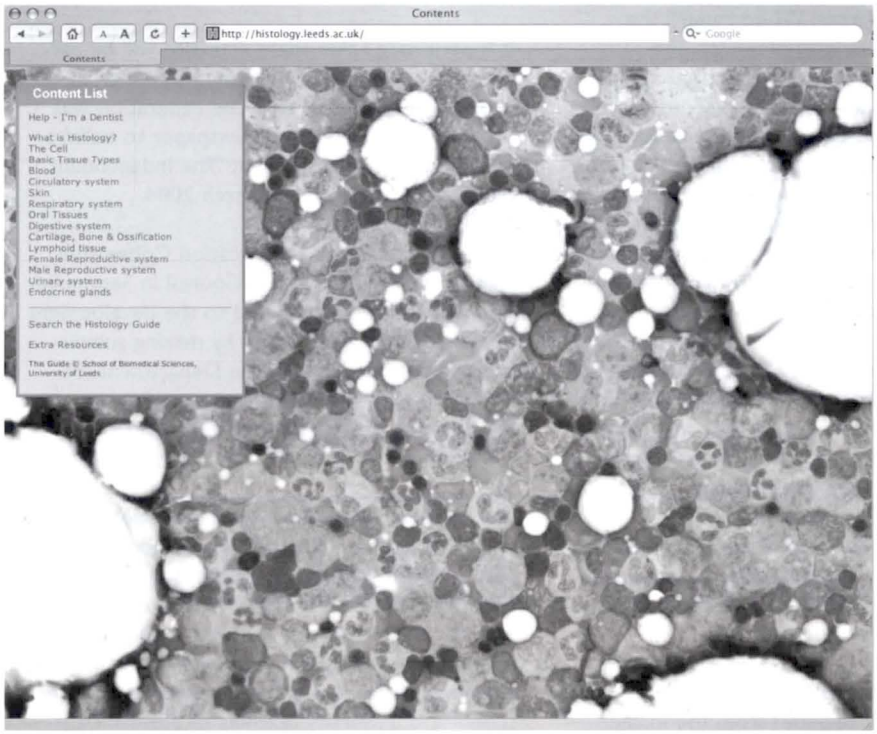
Leeds University histology website

A teaching aid that lets you have more time in the lab!

Michelle Peckham

Teaching histology in Leeds until recently relied on the traditional series of lectures followed by practicals, in which students looked down the microscope at a series of slides and had to identify features, etc. However, the common complaint 'everything looks pink', combined with the inability of students to set up the microscopes correctly to see enough detail, and a push towards using the web to help out with teaching led us to develop the histology website (http://histology.leeds.ac.uk).

We designed the website from scratch. Our first major aim was to give the students a virtual experience of using the microscope, rather than just trawling through text and figures, or even a set of powerpoint slides. We wanted the website to be interesting to use, clear (so the students don't get lost) and as interactive as we could make it. We were fortunate in that we had access to a large range of slides from which to take high quality digital images, my lecture notes and an experienced web designer (Steve Paxton) to help design the site.



The site is divided into topics, which the students must work through. They can see histological slides on the pages and can turn labels on or off to help them identify features. In some cases, they can see a section like a 'virtual microscope' – they can scan around a large picture using the mouse and try to identify features. This emulates as closely as possible the experience of using a microscope. We've also recently introduced a new feature, where the students can also zoom in on a slide, having identified an area of interest. Finally, there are several quizzes for the students to try when they feel they have worked through the topic.

The site has been in use for 18 months now and the students really seem to like it. It has completely replaced my histology teaching (lectures and practicals). For some courses, it is a useful back-up; for others, it is used as the main teaching tool. It has helped us to teach histology to a wide group of students from medicine, dentistry and science. The basic concepts taught in histology are extremely helpful for cell biology students as well. Recently, we licensed the site to the new Hull and York medical school. Perhaps the site would be useful to teachers of histology in other universities? The basic layout could also be adapted to teach other topics. I would be very interested in your opinions on the website and whether it could be useful to you.

Michelle Peckham
School of Biomedical Sciences, University of Leeds, Leeds, LS2 9JT
m.peckham@leeds.ac.uk

Biosciences Federation
The first year's activities

The Federation is a charity, and acts as an umbrella organisation with a number of life sciences learned societies and similar organisations as its members. Its key aims are:

- *to promote liaison between bioscientists on common issues relating to research and teaching;*
- *to provide opinion and information to assist the formulation of public policy; and*
- *to promote wide and open debate about the practical and ethical issues surrounding developments in the biosciences and their applications.*

Joan Marsh

Assisting the formulation of public policy
The strengths in this area of the Institute of Biology and the former UKLSC were brought together in the Federation. More than 18 submissions on matters of general science policy were made in 2003 to consultations from agencies including the Department for Education and Skills (on the Higher Education White Paper), the Office of Science and Technology (on the Sustainability of University Research), the Commons Science and Technology Committee (on three separate topics), the Higher Education Funding Council (on Research Assessment; Future Funding Methods for Teaching and for Research; Improving Standards of Postgraduate Research Degrees), and the Nuffield Council on Bioethics (on the Use of Genetically Modified Crops in Developing Countries).

The Federation was invited by the Commons Science and Technology Committee to provide an expert on nanotechnology to serve on a panel alongside senior figures from the Royal Society of Chemistry and the Institute of Physics. Furthermore, the Chief Executive of the Biotechnology and Biological Sciences Research Council specifically asked the Federation to submit evidence to the Commons Committee's review of the Council's performance.

Supporting Science Education
A group of member societies from the former UKLSC collaborated with the Institute of Biology to ensure that essential education and careers work continued during the establishment of a new Biosciences Federation Education Committee. These participated in four schools' Careers Fairs in 2003 in collaboration with the Royal Society of Chemistry and the Institute of Physics, and organised three Careers Conferences attended by more than 750 undergraduate and postgraduate biosciences students at venues around the UK.

It is anticipated that these activities will be partially funded by, and run under the banner of, the Federation in future years. The Federation was asked by *The Independent* newspaper to collaborate on a special supplement 'The Independent Bioscientist' published in March 2004.

The members of a new Education Committee were formally approved by Council in September. The Committee contributed to the development of national education policy by making submissions to consultations by the Department for Education and Skills (on Developing Subject Specialisms), and the Qualifications and Curriculum Authority (on Key Stage 4 Biology).

The highlight of the first year's operation was undoubtedly the colloquium in October run in collaboration with the Biosciences Learning and Teaching Support Network. There is concern within many circles that too few young people are choosing to continue in science; this meeting examined issues that affect the interface between school and university teaching of bioscience. It attracted a large and participative audience of school teachers, careers advisers, university admissions tutors and parents. Making careers in science more attractive will continue to be

important for the country's health and prosperity. The Education Committee intends to run further colloquia addressing this theme in future years.

Promoting liaison among bioscientists on common issues

The Biosciences Federation brings together 28 organisations covering the range from physiology and neuroscience, biochemistry and microbiology to ecology, so policy submissions represent the unified voice of the biosciences. The Federation produced a monthly digest of national and international science policy news which was distributed to member organisations and also to Heads of Biosciences Departments in all UK universities, selected senior industrial figures, and Parliamentary contacts including the secretariat of the Commons Science and Technology Committee.

The Animal Science Group provides an excellent example of promoting liaison between bioscientists on a particular common issue. As well as being attended by representatives from most Federation organisations, its meetings are also observed by representatives from a range of research charities, research funders, and industry, including the Royal Society, Academy of Medical Sciences, the Wellcome Trust and the Association of the British Pharmaceutical Industry (ABPI).

During 2003, the Group contributed to national policy in this area by making five submissions to consultations from government bodies and the Nuffield Council on Bioethics. It completed a survey of times taken to receive new or revised Home Office licences which showed that the target time of seven weeks is frequently being missed. The Group also produced a report on best practice in Ethical Review which was accepted by the Home Office Inspectorate and was circulated widely to interested parties.

As a result of these activities and its expertise, the Animal Science Group continued to be consulted regularly on matters within its remit by the Office of Science and Technology and the Home Office Animals Inspectorate. In order to be able to consult more easily, the Group established a panel of academic Home Office licence holders and other interested persons. Finally, the Group produced a variety of statements, papers and pamphlets to explain to school pupils and the general public the need for continued work with experimental animals.

UK biomedical organisations are frequently taken by surprise by initiatives from the European Commission or its Parliament that adversely affect them. The Federation called a meeting of key organisations to discuss how European activities can be more effectively monitored and good intelligence fed back to enable UK bodies to have more influence on developments. As a result of this meeting, a new Liaison Group has been established comprising representatives from organisations including the Research Councils, the Royal Society, the Wellcome Trust, the ABPI, the Academy of Medical Sciences, and the Association of Medical Research Charities.

The Federation is in the process of establishing a Committee on Sustainability and a Working Group on Infections. It is anticipated that these too will work in close collaboration with relevant external organisations.

The ASCB meeting in San Francisco December 2003

I was lucky enough to attend the 43rd ASCB annual meeting in San Francisco as the winner of the BSCB Young Cell Biologist of the Year award.

Karen Groot

The ASCB annual meeting is of an unbelievable size, with over 9000 people spread out over the giant Moscone convention centre, close to the centre of San Francisco. It all feels a little bit daunting to begin with. To cover the five day conference, you are provided with a large meeting book and a giant abstract book to cover the plethora of talks and up to 700 posters presented every day. So, armed with a coffee and highlighter, I set about looking through the books to highlight the essential talks and posters relevant to me.

The meeting kicked off with 'A vision of the future of science' by **Sydney Brenner**, the winner of the Nobel prize for medicine in 2002 and **Sergey Brin**, the co-founder of Technology Google. It was interesting to hear how Technology Google are now using their knowledge of search engines and the processing of large data sets to help biologists analyse genomes, protein structure prediction, and expression and clinical data.

The morning sessions started bright and early, at 8 am, with talks covering a wide variety of topics for a more general audience. In the 'cell motility' session, **Frank Gertler** had some great data illustrating the role of the Ena/VASP proteins in the regulation of actin cytoskeleton polymerisation and their effects on cell motility. **John Condeelis** described his lab's work on the entry of tumour cells into the vasculature as a first step in metastasis. Using intravital multiphoton microscopy, they have followed the movement of GFP-expressing tumour cells *in vivo*, gaining insight into the mechanism of metastasis and the involvement of growth factors, macrophages and ECM components.

In the afternoon, the meeting was split into eight minisymposia with more focused talks on specific areas of cell biology. The 'cell polarity' session concentrated on protein complexes important for defining polarity. **Ben Margolis** described the role of a large multisubunit complex of PATJ and PALS found at tight junctions and the apical plasma membrane. **Anirbal Datta** presented data on the role of a complex of PAR3, PAR6 and aPKC in defining polarity, using a system in which MDCK cells are grown in collagen to form luminal polarized cysts. Dominant-negative expression of Rac1 or Cdc42 reversed the orientation and structure of the cysts formed by MDCK cells. The function of desmoplakin, a member of the plakin family of proteins on which I work, was covered by **Ian Gallicano**. Desmoplakin is a major protein of the desmosomes, the adhesive structures between epithelial cells, but new results have shown the association of desmoplakin with the adherens junctions of endothelial cells. Gallicano described the disruption of the capillary system in desmoplakin knock-out embryos, and the inhibition of microvascular tube formation of endothelial cells *in vitro* in the presence of desmoplakin siRNAs.

Tuesday's cytoskeletal dynamics session covered some interesting aspects of the microtubule cytoskeleton. **Torsten Wittmann** described how 'pioneer' microtubules found at the leading edge of migrating PtK1 cells grew more persistently than the dynamically unstable central microtubules. He said that this behaviour was due to the effect of Rac1 on the phosphorylation of Op18/stathmin, a microtubule-destabilizing protein, by Pak1.

On the last day of the conference, **DG Wei** covered the isolation of stem cells from the vestibular sensory epithelium. This lines the inner ear and the epithelial cells are important for hearing. Wei *et al* have established culture conditions for these cells, as well as conditions in which they can be induced to differentiate to produce sensory hair cells. The vestibular sensory epithelial cells may in the future be used to treat people with hearing problems caused by age, trauma or antibiotics.

The poster sessions were held over lunch and early afternoon, giving you plenty of time to look

through them all and talk to people while munching away on the complimentary popcorn. The overriding theme of the poster session was RNAi and its uses. With this method becoming a popular way of knocking down the expression of specific transcripts, it was interesting to see in which systems this was proving useful and the important controls and pitfalls to consider.

My poster was in the 'plasma membrane interactions' session held on the Monday. Working in a small field, focusing on members of the plakin family of cytoskeletal linker proteins, there are not many meetings where you get a chance to talk to a large number of people with similar interests. The ASCB is different, though. With sessions covering every aspect of cell biology, I was able to discuss several aspects of keratinocytes and plakin family members both at my poster and during other people's poster sessions.

I had the opportunity to talk about epiplakin, a new and unconventional plakin family member, and its possible function with members of the Steinert lab. Members of Kathy Green's lab and Ron Liem were also great for considering the implications of my work on the roles of envoplakin and periplakin in keratinocytes and other cell types.

A very useful session for graduate students like myself and postdocs was that on 'how to write better research papers'. The session was chaired by William Wells, a frequent author of articles for the *Journal of Cell Biology*, who gave us the writer's perspective on how to structure a paper and its components. Vivian Siegel, executive director of the Public Library of Science and a former editor of *Cell*, gave us an editor's view. She explained what editors are looking for when they first read a paper and decide whether to send it to specialist referees. Useful tips were that you must be precise and clear with your terminology and make the figures self-standing. It is important to make a distinction between what the results tell you or what they suggest. From the editor's perspective, the article should be logically written and you should have spent time considering the right journal for your article in terms of its impact factor, readership and any length restrictions which apply.

Despite the busy schedule at the meeting, there was time to explore the city and its sights and the trip proved a perfect opportunity to check out possibilities of postdoc positions. I would like to thank Tadashi Karashima for providing some of the data that I presented at the meeting and the BSCB for giving me this great experience.

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Molecular Cell Biology in Manchester

A one-day workshop was held on April 15, 2004, in Dalton Ellis Halls of Residence at the University of Manchester. This meeting featured talks by postdoctoral workers and PhD students from the Universities of Sheffield, Leeds and Manchester.

The focus of the workshop was to explore the theme of protein folding and targeting and cytoskeletal regulation.

Topics covered included quality control in the ER; how GPI-linked proteins are recognised by the translocation machinery; the expression of Eph receptors and their ligands in skeletal muscle; regulation of membrane trafficking, in particular the role of rab5 in the early endocytic pathway, the trafficking of VEGFR in endothelial cells and the characterisation of OCRL1, a phosphoinositide binding protein that is localised to the Golgi complex; the regulation of the actin cytoskeleton by beta-dystroglycan and studies to implicate the actin cytoskeleton in ageing in yeast.

The diversity of the programme stimulated considerable discussion. Feedback was generally positive and it was agreed to make this an annual event and to extend it to become a North of England Cell Biology Forum.

The meeting was generously sponsored by the BSCB and the Biochemical Society, which financed the accommodation and catering for a total of 47 participants.

Liz Smythe

BSCB Spring Meeting 2004
University of Kent at Canterbury, 1 April 2004

This year's Spring Meeting was held at the University of Kent. An excellent scientific programme had been put together by the session organisers and the BSCB committee. This venue was particularly good as it had a large hall for the poster sessions and hosted the largest ever number of posters at a BSCB meeting. While the lecture theatres, posters and food areas were all some way apart, the weather was thankfully mostly dry and we could all enjoy the beautiful views across Canterbury.

As usual, owing to the parallel sessions, the length of report permissible and our own interests, we have not been able to include details of every talk here, rather we hope to provide a flavour of some of the highlights of the meeting. We therefore wish to apologise to anyone who doesn't see their presentation mentioned.

Cytoskeleton and Cell Polarity

Clare Batchelor, Jennifer Mackley, Mike Broderick and Jennifer Higginson

Thursday morning began early with an exciting, wide-ranging session on Cytoskeleton and Cell Polarity which included studies on plants, yeast and mammalian cells. **Laura Machesky** (University of Birmingham) began this session by discussing the molecular mechanisms involved in cellular dynamics. In particular, how cell signalling mediated through the WASP-family of proteins activates the Arp2/3 complex, which then leads to the assembly and disassembly of actin filaments. She presented data on the IRSp53/MIM family of proteins, adaptor proteins that link the small GTPase, Rac1, to the WASP-family protein, WAVE2. The IRSp53/MIM family have an actin-bundling function and bind actin through a specific domain, termed IMD (IRSp53/MIM homology domain). When overexpressed in cells, IRSp53 or MIM induce filopodia and other membrane protrusions and when the IMD is deleted the protein loses its membrane localisation.

Kathryn Ayscough (University of Sheffield) then presented her lab's work on the newly recognised role of the actin cytoskeleton in ageing and apoptosis in *Saccharomyces cerevisiae*. Yeast mutants with reduced actin dynamics showed loss of mitochondrial function and contained greater levels of reactive oxygen species than wild type cells and as a consequence died prematurely. Significantly, the number of reactive oxygen species decreased in mutant cells with increased actin dynamics and the cells had greater viability and replicative capacity.

Patrick Hussey (University of Durham) described actin binding proteins in plants and in particular the roles of ADF and AIP1 in the signalling pathways controlling actin dynamics in *Arabidopsis*. The importance of AIP1 in plant development was shown using ethanol-induced AIP1 RNAi expression. Loss of function resulted in stabilised actin bundles and a reduction in cell growth, perhaps caused by a decrease in F-actin turnover and the promotion of actin bundling. He also discussed the possible parallels between the control of the ARP2/3 complex in plants and other organisms and suggested that the differences between systems are often more interesting than the similarities.

Sandrine Etienne-Manneville (Institut Curie, Paris, France) described the importance of microtubule organisation in polarised migrating cells. Primary rat astrocytes were studied using a combination of scratch-induced migration assays and Total Internal Reflection Fluorescent Microscopy (TIRF), a technique that allows detailed examination of proteins close to the basal membrane. Her lab has

elucidated a pathway downstream of Cdc42 that leads to microtubule end capture at a site containing APC. A complex of APC and EB1 is required for microtubule capture and this is essential for centrosome reorientation and cell polarisation.

Roy Quinlan (Durham University) discussed the importance of the lens-specific intermediate filament protein,CP49. Mutations in this protein cause cataracts in humans but, unexpectedly, CP49 knockout in the mouse didn't induce cataracts but did lead to increased light scatter in the lens. This was a result of the dramatic reorganisation of the plasma membrane in lens fibre cells and a depolarisation of organised membrane compartments with a concurrent loss of the optical properties of the lens. This model can be used to study the relationship between cell compartmentalisation, polarity and the intermediate filament cytoskeleton.

Finally, **Michel Bornens** (Institut Curie, Paris, France) presented an interesting technique for the study of the relationship between cell adhesion patterns and the control of the cell division axis in mammalian cells. He described the use of microcontact printing coupled with automated image analysis to look at the distribution of retraction fibres in dividing cells and how it affects the orientation of the mitotic spindle axis. He also showed that post-mitotic cell spreading correlates over time with all the former ruffling contacts of the mother cell.

Hooke Medal

This year's Hooke Medal was awarded to Elmar Schiebel (Paterson Institute, Manchester) for his work on the role of the regulation of mitosis in yeast. His work has been at the forefront of this field and his studies have been pivotal in forming our current understanding of how the mitotic spindle is regulated and oriented in the cell.

His medal lecture was refreshingly accessible to all and gave a great introduction to the field for those unfamiliar with it. He described many of his lab's elegant studies using both genetic and cell biological approaches to determine the role of the APC-like protein Kar9 during spindle positioning and how its function is regulated by the yeast cyclin-dependent kinase.

Protein Modification and Degradation

The Protein Modification and Degradation session was opened by **Aaron Ciechanover** (Technion-Israel Institute of Technology, Haifa, Israel) who gave an overview of the mechanisms and cascades involved in the control of ubiquitination and apoptosis. He described how ubiquitination usually begins with conjugation to an internal Lys residue but in some cases conjugation occurs at the free N-terminal residue of a protein. Substitution of Lys residues does not affect the conjugation to ubiquitin or ultimate degradation, however, blocking the N-terminal residue significantly inhibited conjugation and degradation. Deletion of a short N-terminal segment from these proteins or addition of a tag stabilised the proteins and addition of the N-terminal residues to normally stable proteins, such as GFP, resulted in susceptibility to degradation. He went on to describe how members of the inhibitor of apoptosis (IAP) protein family are processed during apoptosis, detailing how these proteins provide additional levels of caspase control via auto-ubiquitination of themselves and associated caspases.

Endre Mathe (CRUK, Cambridge) detailed the spatiotemporal degradation of cyclin B controlled by an E2 ubiquitin-conjugating enzyme encoded by the *vihar* gene. RNAi and mutagenesis were used to reduce levels of vihar E2-C resulting in an accumulation of cells that showed elongated spindles, scattered chromosomes or diminutive metaphase-like spindles. Expression of destruction D-box mutants of Vihar resulted in mitotic arrest in the metaphase-anaphase transition normally associated with the degradation of Cyclin B. Endre described how the anaphase promoting complex/cyclosome (APC/C)-mediated proteolysis of vihar E2-C contributes to an autoregulatory loop that ensures cyclin B degradation progresses from the spindle poles to the rest of the spindle. In turn, this contributes to controlled proteolytic degradation of mitotic regulatory proteins, which is important for an ordered progression through mitosis.

Peter Ratcliffe (Oxford) focused on the hypoxia-inducible factor transcriptional complex (HIF) and its regulation by oxygen-dependent enzymatic hydroxylations at specific prolyl and asparaginyl residues. Hypoxia was induced through use of cobalt. The induction of the hematopoietic growth factor erythropoietin could be stimulated by binding of the HIF-1 heterodimer to the hypoxia response element upstream of the *Epo* gene. Structural and genetic approaches were used to identify the enzymes responsible for hydroxylation. Prolyl hydroxylation is performed by the enzymes PHD1-3, which promote interaction with von Hippel-Lindau tumour surpressor protein (pVHL). In normal oxygenated cells, this process targets HIF-α for rapid destruction. Asparaginyl hydroxylation is performed by FIH (Factor Inhibiting HIF). Genetic studies have demonstrated a critical role for both types of enzyme in regulation of the HIF transcriptional cascade and the differential regulation of the cellular levels of HIF prolyl hydroxylases (PHD1-3) may allow flexibility in the response to hypoxia under different physiological conditions.

Biological imaging

The Thursday afternoon session on Biological Imaging was a platform for colleagues to present recent data obtained using new or improved imaging technologies. **Jan Ellenberg** (EMBL, Heidelberg, Germany) presented data from his laboratory on chromosome movement during meiosis in starfish oocytes. Using live cell imaging with labelled dextran molecules of different sizes, they were able to visualise the point of nuclear envelope breakdown and show that it was a two-step process. In addition, with the use of actin depolymerising drugs, they demonstrated an actin-dependent step in the relocalisation of the chromosomes to the spindle pole during meiosis.

Continuing with a nuclear theme, **Martin Goldberg** (Durham University) presented some beautiful images of the nuclear pore complex observed from the nucleoplasmic side of reconstituted *Xenopus* nuclei, obtained using an optimised method of field emission scanning electron microscopy. He explained that they hoped to use this technique in combination with depletion experiments to identify potential protein components of the basket structure of the nuclear pore complex.

On the theme of chemotaxis, **Michael Redd** (Kings College, London) presented his work on the imaging of GFP-labelled leukocytes in live zebrafish embryos. He was able to show that the chemotaxis of leukocytes to a wound was dependent upon microtubule stability. He suggested that this was partially due to the microtubule effect upon Rho GTPase inhibition, since inhibition of ROCK, downstream of Rho, partially restored chemotaxis in nocodazole-treated embryos.

On a similar note, **Cees Weijer** (University of Dundee) described the role of growth factor signalling in chemotaxis during chick gastrulation. He demonstrated the use of a beautiful live assay involving the grafting of GFP-labelled cells into different areas of the growth streak in order to track their movement in response to implanted beads coated in various growth factors. **Oliver Griesbeck** (Max-Planck Institute for Neurobiologie, Germany) presented recent advances in their development of calcium sensors. Using FRET (fluoresence resonance energy transfer), they have exploited the conformational changes induced in calmodulin or troponin C following their interaction with calcium to generate GFP-fusion proteins which can be used to measure calcium dynamics *in situ*. **Guy Rutter** (University of Bristol) described data from his group on the use of TIRF microscopy to visualise secretory vesicle dynamics. TIRF microscopy allows visualisation of a narrow region of the cell close to the basal plasma membrane. Using a double labelling technique, they were able to visualise the membranes and cargo of the vesicles separately in order to investigate models for cargo release and vesicle membrane recapture during exocytosis.

Mechanosensation and organogenesis

In the parallel session Mechanosensation and Organogenesis, **Albert Ong** (University of Sheffield) introduced polycystic kidney disease (PKD) and explained that this disorder is one of the most common human diseases arising from mutations of the genes encoding polycystin-1 and polycystin-2. The two proteins act together to form a functional complex important to such cellular processes as calcium intake, growth and regulation of G-protein signalling. He described work using a variety of experimental models, including algae, nematodes and mice. These studies have implicated defects in the structure and function of primary cilia as a common mechanism pivotal to the development of some forms of recessive PKD.

Jing Zhou (Boston, USA) described the cellular defects seen in autosomal dominant PKD, namely increased cellular proliferation, abnormal differentiation, increased apoptosis and increased fluid secretion. Recent advances in PKD research have highlighted the importance of renal cilia, detailing the manner in which polycystin-1 is able to mediate mechanosensation in the primary cilia of kidney epithelial cells. In normal kidney cells, a calcium signal is generated in response to fluid flow but not in poycystin-1 mutants or when the polycystin-2 channel is blocked through the use of antibodies. Thus, polycystin-1 and -2 contribute to fluid-flow sensation by the primary cilium in the renal epithelium and function in the same mechanotransduction pathway. Loss or dysfunction of these proteins may lead to PKD via an inability to sense mechanical cues that normally regulate tissue morphogenesis.

Nuclear lamins in cell biology and disease

The session Nuclear lamins in cell biology and disease started with **Gisele Bonne** (Institute of Myologie, Paris) who presented data on mutations in the lamin A/C gene. In laminopathies with striated muscle abnormalities, many of the mutations were identified in the core of the lamin A structure and produced increased numbers of abnormal nuclei. These abnormal nuclei showed loss of nesprin and emerin localisation to the nuclear envelope. In contrast, **Sue Shackleton** (Leicester) presented data on a cluster of mutations on the C-terminal face of the lamin A which cause familial partial lipodystrophy. These mutations were proposed to affect lamin A interactions and her group identified two interesting candidate binding proteins, the sterol response element binding protein (SREBP-1), which is involved in adipocyte differentiation, and SUN-1, a previously uncharacterised protein. SUN-1 proved to be a nuclear membrane protein that may link dynein to the nucleus via microtubles. **Jos Broers** (University of Maastricht, The Netherlands) presented some interesting data obtained with a novel technique developed to induce mechanical stress upon nuclei by squashing cells. Under conditions where the wild-type nuclei remained intact, mechanical stress of lamin A-deficient cells caused the nuclei to burst, suggesting that lamins are important for the structural integrity of the nucleus. This may help to explain some of the muscular defects associated with lamin A mutations, since muscle cells experience high mechanical load. As an alternative model for how lamin A mutations may lead to disease, **Roland Foisner** (Vienna Biocenter, Austria) presented new data from his laboratory on the role of lamin A/LAP2α complexes in the control of the G1/S phase transition. LAP2α interacts with the chromatin-associated protein BAF and this interaction is necessary for LAP2α association with chromosomes and subsequent progression of the cells into S phase. In addition, his group demonstrated that downregulation of LAP2α led to an increased cellular growth rate which may be due to LAP2α/lamin A interaction with Rb. This may be important in relation to the premature ageing effects observed in some laminopathies.

Dynamics of cell matrix interactions

The parallel session Dynamics of Cell Matrix Interactions began with **Michael Sheetz** (Columbia University, New York, USA) describing the cellular response to force from the extracellular matrix. He explained that the activation of the Src family kinase, Fyn, by a receptor-like tyrosine phosphatase is not only required for focal complex formation, but also strengthens integrin-mediated cytoskeleton connections during the initial phase of ECM contact. Later, when cells are reinforcing adhesion sites, down-regulation of focal adhesion kinase by Shp2 increased the paxillin lifetime in focal contacts. Furthermore, Sheetz suggested that the binding of paxillin to focal contacts results from cytoskeletal stretch and not the opening of the ion channels, since detergent-treated cytoskeletons bind the same proteins in response to stretch.

Kairbaan Hodivala-Dilke (CRUK, London) then discussed whether integrins can act in a manner similar to growth factor receptors, since both mediate proliferation and differentiation, and influence cell adhesion and migration. In integrin knockout mice, she showed enhanced wound healing with complete re-epithelialisation earlier than in wild-type mice. She hypothesised that other molecules were compensating for the lack of β3 and went on to show increased levels of TGFβ-1, fibronectin deposition and dermal fibroblast infiltration in β3-null wounds. She explained that the β3-integrin deficiency was associated with elevated TGFβ-receptor 1 expression, reduced Smad3 levels, extended Smad2 and Smad4 nuclear localisation and enhanced TGFβ-1-mediated dermal fibroblast migration. Kairbaan's work revealed a novel role for β3-integrins in the regulation of growth factors, such as TGFβ-1.

Don Moerman (University of British Columbia, Canada) discussed the similarity between sarcomere assembly in *C. elegans* and the formation of integrin-mediated focal adhesions in vertebrates. He used a genetic approach to analyse mutants for UNC-97/PINCH, unc-98, UNC-112, PAT-4/ILK and PAT-6/ACOPAXIN, all of which are components of the dense bodies and M-lines used to organise and anchor myofilaments within *C. elegans* body wall muscle cells. From this approach, Moerman was

Plenary

Friday morning kicked off with a plenary lecture by **David Spector** (Cold Spring Harbour Laboratory, New York). He explained the development of a particularly informative construct by his laboratory which allowed real-time visualisation of gene expression in cells.

The position of the gene construct within the chromatin could be visualised when CFP-labelled lac repressor protein was co-expressed, as this bound to the lac repressor sequence incorporated upstream of the regulated promoter. The mRNA could be visualised by the co-expression of YFP-labelled MS2 proteins, which bind to MS2 repeats within the RNA sequence. This construct finally generated a CFP-labelled protein product which was targeted to the peroxisome so as not to be confused with the chromosome labelling.

David went on to demonstrate the uses of this construct in determining the dynamics of recruitment and displacement of gene expression factors or chromatin-associated proteins, such as histones, during chromatin activation.

Left: Fiona Watt (BSCB President) and David Archer (Schools Liaison Officer) enjoying the conference.

able to identify the order of addition of these components to an adhesion junction and hinted at their possible functional roles. His group is currently identifying possible candidates involved in sarcomere assembly after performing Serial Analysis of Gene Expression on embryonic body wall muscle cells.

Owing to a missing speaker, **Nick Brown** and **Cristos Zervas** (University of Cambridge) stepped in to discuss the ways in which intracellular proteins localised to focal adhesions transduce extracellular signals through integrins to the cytoskeleton. Loss of integrin function in *Drosophila* causes a blister phenotype, which Brown's lab has used in a genetic screen to identify cytoskeletal proteins, such as talin, and signalling adaptor proteins, such as integrin-linked kinase and tensin, all of which are associated with focal contacts. Brown and Zervas discussed their hypothesis that these proteins interact with integrins in a linear, hierarchical fashion and presented data indicating that talin is a core component, since the absence of either talin or integrins resulted in almost identical defects.

Dynamics of cell-cell adhesion

The afternoon session on the Dynamics of Cell–Cell Adhesion was chaired by **Paul Martin** (University of Bristol), who also ended up standing in for a missing speaker. Despite the short notice, he gave a fascinating talk on the mechanisms of wound healing. He explained how they have visualised real-time wound closure in *Drosophila* by labelling the embryos with GFP and how this had enabled them to investigate the roles of the Rho GTPases in this process.

Sergio Simoes (Instituto Gulbenkian de Cienca, Oeiras, Portugal), also using *Drosophila* as a model system, described how they were investigating the roles of the non-classical cadherins. He demonstrated how four of these non-classical cadherins localised to the posterior spiracle cells, the main larval respiratory organs, in a dynamic way during spiracle morphogenesis. Even though these cadherins lack a catenin-binding domain, he presented evidence to suggest that they are components of adherens junctions.

Using a different model system, **Valeri Vaishoukhin** (Seattle, USA) spoke about recent work on the mammalian homologues of the *Drosophila* tumour suppressor, lethal (2) giant larvae. His lab has generated *Lgl1* knockout mice that show severe disorganisation of brain structures, which was attributed to the failure of neuroprogenitor cells to leave the cell cycle and differentiate. The neuroprogenitor cells showed loss of polarity and cell-cell adhesion leading to asymmetric cell division, which accounted for the increase in proliferation-competent cells.

On a different note, **Kate Nobes** (University of Bristol) presented some interesting work on the role of ephrins and ephrin receptors in contact repulsion. Essentially, if an ephrin receptor on one cell is activated by the opposing ephrin ligand expressed on the surface of a different cell, they repel each other and induce cell motility in opposite directions. She has observed that the activated receptor became endocytosed with the full-length ephrin molecule, transferred from the opposing cell, in a phagocytosis-like event which required actin polymerisation and Rac. This endocytotic event appeared to be the repulsive event, since cells retracted from each other upon endocytosis. In addition, the receptors appeared to endocytose with components of the cellular adhesions, which may provide a possible mechanism for the inability of these cells to form junctions with each other.

Plenary

Saturday morning's early plenary lecture by **Randy Schekman** (University of California, Berkeley, USA) was very well attended considering the sore heads from the night before! I think everyone agreed it was well worth getting out of bed for.

Randy presented some of his lab's recent data on the molecular mechanisms of protein sorting from the ER. In particular, he discussed the role of Sec24p in selective sorting of cargo proteins. This was shown to drive cargo recruitment by direct interaction with sorting signals within membrane proteins, allowing it to discriminate between cargo and ER resident proteins. Multiple protein interaction sites were determined within Sec24p by mutational analysis based upon structural data. Mutation of Sec24p at these interation sites caused protein sorting defects that affected cargo packaging and fusion with the Golgi.

Cellular Microenvironment

The common theme of the Cellular Microenvironment session, chaired by **Fiona Watt** (CRUK, London), focused on how a cell's microenvironment – which includes growth factors, hormones and the surrounding extracellular matrix – influences tissue specificity and development. **Janet Heasman** (Cincinnati, USA) discussed the role of the maternal transcription factor, VegT, in the establishment of the endodermal and mesodermal tissues in *Xenopus*. She described how TGFβ signalling proteins, which act downstream of VegT, are regulated transcriptionally by the *cis*-regulatory network of maternal transcription factors and post-translationally by the PACE4/SPC-4 enzyme of the subtilisin-like proprotein convertase class.

In a short talk chosen from abstracts, **Andrea Varro** (University of Liverpool) provided evidence that matrix metalloproteinase 7 (MMP-7) plays a role in epithelial-mesenchymal signalling by regulating myofibroblast function.

Zena Werb (UCSF, USA), who was the Cancer Research UK-sponsored lecturer, delivered a highly interesting and convincing view of MMPs as effectors of the cellular microenvironment in mammary gland development. By using a broad spectrum MMP inhibitor in organogenic cultures, Werb showed that MMP activity was required for mammary gland morphogenesis and that this action was organ autonomous. After localizing MMP-2, MMP-9 and MMP-14 mRNA expression in pubertal mammary glands, she found that invasion of buds was affected in MMP-2 knock-outs whereas branching was severely compromised in MMP-14 knock-outs.

Overall, MMP knock-outs demonstrated unaltered proliferation but increased apoptosis. Werb also explained that mutant mice containing collagenase-resistant collagen I demonstrated similar phenotypes to the MMP-14 knock-outs, leading her to conclude that collagen I degradation is required for ductal penetration. Further use of MMP null cells and knock-outs revealed that MMP-2 and MMP-3 are involved in side branching as ducts mature and begin to develop, and that overexpression of MMPs results in gain of function.

Caroline Damsky (UCSF, USA) shifted the focus from matrix proteases to cell-matrix interactions by discussing the common signalling pathways of fibronectin and focal adhesion kinase (FAK). Damsky's lab observed decreased proliferation in fibronectin- and FAK-null embryos alongside elevated levels of p53, Mdm2 and p21. In fibronectin- and FAK-null embryos that were also p53- or p21-null, wild-type proliferation levels were observed, leading to the hypothesis that a p53-p21-regulated pathway mediates the proliferation block seen in null embryos.

Finally, **Mina Bissell** (Berkeley, USA) concluded with a fascinating presentation describing the role that the microenvironment plays in a cell's phenotype and, ultimately, how this phenotype can be dominant over genotype. Bissell's lab mimicked breast structural acini by culturing epithelial cells in 3D inside a reconstituted basement membrane or by co-cultivation of epithelial and myoepithelial cells in collagen I gels. In both these systems, normal and malignant cells could be distinguished easily. Bissell showed that tumour cells could be manipulated in these systems to revert to a normal phenotype by inhibition of the β1-integrin, EGFR, MAP kinase and the PI3 kinase signalling pathways. Interestingly, this modulation did not occur in 2D cultures. Bissell also showed that disorganized structures in 3D and cells cultured in 2D environments were sensitive to apoptosis-inducing agents, whereas polarized acini were resistant, irrespective of whether the genome was malignant or not. Furthermore, she explained that switching cells from 2D to 3D cultures not only changed cellular and tissue structures but also nuclear structure. This dominance of phenotype over genotype has tremendous implications for cancer therapy and Bissell encouraged the expansion of this type of research for therapeutic benefits.

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Spring Meeting: Lord Sainsbury's speech

I am delighted to have been invited to speak at this, the Spring meeting of the British Society for Cell Biology.

I have been asked to talk about "Scientific Research Priorities for the UK: The Government's perspective". I would like first to set the historical context, before moving on to illustrate what steps the Government has taken in this area and what areas we are currently focusing on, before mentioning a few of the challenges we face.

When this Government came to power in 1997, investment in science had been run down and in decline over a number of years. Business research and development, one of the best measures of technological innovation, had also experienced a steady period of decline, from 1.5% in 1981 to 1.16% in 1997. However, in spite of this, the UK continued to produce world-class science. For example, British research produced 13% of the world's top - that is most cited – papers in 1998, as measured across a wide spectrum of disciplines, and UK researchers are among the most prolific in the world, producing 16 research papers per $1 million of research funding compared to 9.2 in the USA and 3.6 in Japan.

Despite this impressive record, the Government saw it as an immediate priority to give increased support to the science base both to meet its public sector objectives and to increase the rate of wealth creation. In the last three Spending Reviews, the Government has consistently shown its support for this agenda. In 1996/7 the science budget stood at £1.3 billion. The 1998 Comprehensive Spending Review increased this by 15% over three years. The 2000 Spending Review added £725 million to the Science Budget over three years, including specific funding to boost research in key new areas, such as genomics, that will shape life in the 21st century. The 2002 Spending Review announced that the Science Budget will grow by an average of 10% a year in real terms and will reach £2.9 billion by 2005/2006. This will mean that in the eight years since 1997 the science budget for the Research Councils will have more than doubled. This will help ensure that we attract and retain high quality people and that the UK science base matches world class standards and is properly equipped to carry out 21st century research.

As part of moving the research base onto a sustainable long-term footing, the Government announced in the 2000 Spending Review the establishment of the Science Research Investment Fund (SRIF) for the period 2002-03 and 2003-04, building on the success of the Joint Infrastructure Fund (JIF). In January 2003, we announced a further £1 billion for SRIF for 2004-5 to 2005-6. This will increase to £500 million a year by 2005-06 for universities' science research infrastructure.

In many areas of science, UK researchers need access to large-scale facilities of increasing cost and complexity. This is essential for them to stay internationally competitive. The Government and the Research Councils produced the UK's first Large Scale Facilities Strategic Road Map in 2001 and revised it in 2003. This Road Map sets out a 15 year forward look at the most important large facilities which UK scientists wish to see completed. These facilities are both national and international, across the whole range of scientific disciplines. The Road Map has enabled significant discussions with international partners and within RCUK on the prioritisation of major facilities. The Government has also

Lord Sainsbury, Science Minister

set aside a Large Facilities Capital Fund, to help Research Councils meet the significant peaks of expenditure associated with construction of major facilities. All this is being translated into major projects, such as the Diamond Synchotron in Oxfordshire and a replacement marine research vessel.

To get the maximum benefit from this support, the results have to be commercialised. We have to increase innovation and the flow of ideas between universities and industry. We have introduced R&D tax credits which are worth £600m per year to businesses. The Government has made significant changes to the tax regime to encourage greater levels of investment by UK companies. We have also provided the universities with incentives for knowledge transfer through schemes such as University Challenge, which puts seed-corn funding into universities, Science Enterprise Centres, which are giving access to entrepreneurial skills to science and technology graduates and undergraduates, and the Higher Education Innovation Fund, which provides incentives for universities to transfer knowledge into the economy. We have also increased the number of Faraday Partnerships from four to 24. All the Partnerships focus on technologies of major importance to the UK and operate in such fields as intelligent sensing and measurement systems; food processing; products with interdependent mechanical and electronic parts; biocatalyst discovery and development; clinically robust medical devices and novel drug delivery systems; remediation of polluted land and water by biological as well as physical and chemical methods; and technical textiles.

As Richard Lambert recognised in his Review of University-Business Collaboration, in the last five years there has been a huge cultural change in our universities and we are now beginning to see results. There was a slight drop from 248 spin-out companies in 2000/01 to

213 in 2001/02, but this compares with the situation a few years ago when there were only 70 a year on average. Income from licensing of intellectual property increased from £18 million to £33 million, an increase of 83%, and the number of new patents filed by HEIs rose by 8%, up from 896 in 2000/01 to 967 in 2001/02. So the old story that British universities are not entrepreneurial is not true and universities and businesses are now working increasingly closely in the new knowledge economy.

Despite the fact that the latest data from 2002 for business R&D show the UK well behind the US and roughly equal to the EU average, it is also encouraging that after the steady period of decline I mentioned earlier there has been a move in the right direction, from 1.16% in 1997 to 1.24% in 2002. I would also point to the growth of incubators to help the start-up of high-tech businesses. Many of these incubators have been set up by the RDAs. We estimate that there are currently 220. This compares to 100 in 2000 and about 25 in 1996. So we are creating the conditions for the restructuring of business and the start up of new companies.

Another key priority has been ensuring the supply of skilled people, because in the knowledge economy we'll only be able to compete on the basis of our knowledge, skills and creativity. Thus the supply of scientists, engineers and technicians is critical to our economic success in the future. At the higher level we do very well, as we produce more science, engineering and technology graduates than any other G8 country except France. However, the overall improvement in numbers does conceal declines in specific subject areas like materials science, electrical engineering, chemistry, physics and biochemistry. There is a vitally important task here to communicate to young people the excitement in the physical sciences - aerospace, opto-electronics, nanotechnology, telecommunications and bioengineering.

This trend in falling numbers begins in schools, where fewer young people are choosing to study subjects like physics at A Level. Sir Gareth Roberts' review on the supply of people into science careers drew attention to a severe shortage in the number of physics teachers, resulting in graduates of the other sciences teaching physics. In fact, nearly 30 per cent of those teaching GCSE physics do not have an A level in the subject. This will inevitably lead to a lack of teachers being in a position to inspire their students and fewer students opting to study that subject at a higher level.

We are taking steps to increase the number of qualified teachers in key science subjects but we need also to address this by looking at how science subjects are taught in schools. We know that not all science teachers feel they have the skills to teach specialist science subjects post 16 and that some feel they need to update their knowledge so they can use the excitement of contemporary science to inspire their students. This is why the DfES and the Wellcome Trust are working together to create a network of Science Learning Centres that will improve science teaching. The Science Learning Centres will focus on encouraging innovative and exciting teaching practice that will enthuse and inspire young people and improve the subject specialism of science teachers. The Science Learning Centres will provide teachers and technicians with high-quality professional development. Teachers and technicians across the country will be able to visit one of the regional centres or the national centre to gain access to expert training, advanced ICT and resources on contemporary scientific developments.

Getting young people interested in science is important for the future of our science base. In 2002, we launched the Science and Engineering Ambassadors programme (Seas) to help teachers promote science and maths to young people in schools. We recognised that the best people to convey the excitement and rewards of careers using skills in Science, Technology, Engineering and Maths (STEM) to young people are other young people who can be seen as role models. There are now approaching 5500 'official' Science and Engineering Ambassadors throughout the UK. The proportion of women is around 35% (significantly more than their representation in that part of the population that has STEM skills) and around 60% of Ambassadors are under 45 years old, with over 30% under 30 years. The DTI supports this programme as the principal interface between schools and those who want to promote STEM in schools. As scientists actively involved in some very exciting research areas, you could play a part in this programme. Some of you may already be ambassadors, in which case I am quite certain you find the experience a rewarding one.

Finally, we have reorganised the DTI so that there is now an Innovation Group and we have recently recruited a Director General, David Hughes, from the world of commerce. He is also a distinguished engineer.

As I hope you can see, we have made a lot of progress but there is still much to be done. The Chancellor of the Exchequer recently announced the Government's plans to introduce a 10-year investment strategy for supporting British science as part of SR 2004, helping make Britain one of the most competitive locations in the world for science, research and development and innovation. In launching the strategy, the Chancellor said: "The Britain that succeeds in the new world will be a leader in science, skills and enterprise. So we have to make it a priority as a nation to invest in what is the key to our whole economic future and well-being — our science and skills."

The Government is also working hard to help our society make the most of all the exciting opportunities that research and innovation create. In this, the public's positive engagement and support is absolutely vital. We used to deal with public engagement under the policy heading of the Public Understanding of Science. Our thinking and approach has now shifted from this "deficit" model to one of positive engagement, as it is vital that scientists and the public understand one another through a two-way process of constructive dialogue.

The chances of this dialogue succeeding will be enhanced if two things happen. The first is for us to develop a better understanding of the public's attitudes towards science, how they wish to engage with science, and whether current science and society activities are meeting their needs. The new Science and Society Directorate within the Office of Science and Technology is addressing these and many other issues. The second is for scientists to be willing to engage positively with the public. This is not simply a case of scientists being prepared to participate in debate, although this is obviously crucial, it is also necessary for them to do some hard thinking earlier rather than later about the ethical, health, environmental and other issues raised by emerging technologies. If there is one thing we have learned in recent years, it is surely that we need to think about these issues upstream rather than waiting for the time when they begin to impact upon the public.

A prime example of this is the ground breaking work of Mary Warnock in the early days of human fertilisation and embryology research. UK

law on embryo research has evolved over 20 years of public and parliamentary debate, beginning with the Committee of Inquiry which Mary Warnock chaired in 1982. As cell biologists, some of you will be involved with research involving stem cells and I am sure all of you are aware of the potential benefits this technology brings.

The UK now has one of the most comprehensive schemes of stem cell regulation in the world. The careful and thoughtful approach which was taken over this lengthy period has enabled us to introduce the necessary regulatory changes to enable stem cell research to go ahead. The approval of these regulations has put the UK in a leading position internationally and has been instrumental in attracting top scientists to the UK.

It was with these lessons in mind that I recently commissioned the Royal Society and the Royal Academy of Engineering to look at whether nanotechnology raised any ethical, health or environmental issues that are not covered by current regulations, and whether, therefore, we need to introduce new regulations. Public engagement is a key component of the study.

Finally, I would like to touch on the public's perception of research involving animals. You may be familiar with the MORI poll which showed that over 90% of people, when asked whether animals should be used for medical research, said that it should be allowed provided the research is strictly controlled. When asked what controls they would like to see, most people described the regulatory regime that we already have in the UK. There are some people who believe that animals should never be used: we respect that view. However, there is a tiny handful of people who are prepared to intimidate and harass anyone associated with animal research to prevent such research. Their actions are wholly unacceptable. This Government supports the need for research involving animals where there are no alternatives. We remain committed to the protection of those scientists and research staff undertaking this work. The Government has taken action and will continue to do so.

In addition to stopping extremists, we need to ensure that the general public has information on the use of animals in scientific procedures and has access to accurate data, rather than the sometimes misleading information disseminated by animal rights extremists. That is why last November a Cross-Government long-term communications strategy was agreed which aims to put across in a co-ordinated manner the facts on regulation of animals in scientific procedures and on promotion of research into non-animal alternatives.

I hope that I have conveyed to you this evening the importance of Science and Technology to this Government. I hope I have also conveyed to you the whole range of activities we are carrying out to support world class research and to increase the rate of innovation, so that science and technology can make an even greater contribution to wealth creation and improving the qualities of all our lives.

Lord Sainsbury, Science Minister

Lunchtime Discussions in Canterbury

At this year's spring meeting the BSCB held two lunchtime discussion meetings. The first was on careers outside academia and the second was on the American Society for Cell Biology (ASCB) Women in Cell Biology (WICB) programme. Both events were heavily over-subscribed. There was general agreement that they were a great success and that we should hold similar events at next year's spring meeting.

Careers outside academia

Kairbaan Hodivala-Dilke made good use of her wide circle of friends and colleagues to put together the careers lunch. She asked each of the four invited speakers to answer the same set of questions: What do I do? Why did I leave academia? What do I love about my job? Although the career paths of the speakers were very different, some of their answers were surprisingly similar. There was a feeling that academic research could be highly frustrating, with a need to specialise rather than consider the big picture. There was dissatisfaction with the academic career structure and salary and a desire to engage more with the public.

All four speakers had made the career change after successful periods of postdoctoral research and in each case the decision to change was a positive one, rather than as a result of failure to progress in academia.

Dagmar Tapon described how she trained as a genetic counsellor and is now working in a prenatal clinic, seeing patients at risk of having a baby with a genetic disorder. She recommended the following websites for anyone interested in pursuing this career. The Association of Genetic Nurses and Counsellors in the UK can be reached at www.agnc.co.uk. The National Society of Genetic Counselors in the US is at www.nsgc.org. She also sang the praises of the NHS as an employer!

Leo Bishop said that her desire to return to Ireland was one of the reasons why she resigned from her lectureship at Imperial College London and moved to Dublin. She worked initially for a company making medical devices and it was this experience which gave her the confidence to set up her own company as an independent scientific advisor. She is now a technical and strategic consultant in the biosciences and medical devices sector, working with Dublin City University and IDA Ireland, a government organisation responsible for inward investment and job creation.

Raj Mehta is a senior business manager at Cancer Research Technology (www.cancertechnology.co.uk). His job is to ensure that inventions arising from research carried out by scientists and clinicians funded by the charity Cancer Research UK are commercialised. Examples include filing patents, selling monoclonal antibodies for research or diagnostics, and making partnerships with pharmaceutical companies to develop and fund clinical trials of potential new anti-cancer drugs. Raj said that his postdoctoral training was a great advantage in helping him to liaise with CR-UK funded researchers as it had given him a maturity and breadth of outlook that he lacked as a PhD student. He warned that technology transfer is a competitive area and that would-be applicants should be prepared to apply for quite a few jobs before they are successful.

Niall Armes is director of research in a company that he co-founded, called ASM Scientific Ltd. The company is developing novel DNA methodologies. He talked about his experience of taking an idea from the original concept through to setting up a biotech company. No-one would consider this career path as an easy option, but someone with an entrepreneurial spirit and a great idea for a product would thrive on the challenge.

All of the speakers at the Careers Lunch would be happy to answer questions from BSCB members and can be reached through Kairbaan (Kairbaan.Hodivala-Dilke@cancer.org.uk).

Women in Cell Biology

Margarete Heck organised the second lunchtime discussion under the headline: 'Women in Cell Biology lunch – it's not just for women!' Since the food rapidly vanished, next year's slogan should be 'It's not just for lunch'. The focus of the meeting was the Women in Cell Biology (WICB) programme that has been run for many years by the ASCB.

Mina Bissell (Berkeley), who was ASCB president in 1996, explained the origins of WICB as a group of angry and frustrated women scientists and how WICB has since evolved into a mainstream, indeed core, activity of the ASCB. In the early days, people believed that if you were involved in WICB you would never stand a chance of being elected as president of the ASCB, but of course Mina and others have since proved them wrong.

Zena Werb (UCSF), ASCB president-elect, outlined the current roles of WICB and drew the audience's attention to the WICB column in the ASCB newsletter. These articles can be found at www.ascb.org/careers/wicb.html. They cover topics that will interest members of the BSCB, such as how to write a CV and how to have a successful job interview. Caroline Damsky (UCSF) gave her perspectives on WICB and emphasised that the support of her colleagues and friends in WICB has been important throughout her career, not only in the early stages.

While Zena emphasised that most of the issues covered by WICB affect both women and men, Randy Schekman (Berkeley), who was ASCB president in 1999 and won the 2003 WICB senior award, begged to differ. He stressed that there are still particular problems faced by women cell biologists and that these had to be addressed, because women are still not being appointed to senior positions in the numbers that they should – the so-called leaky pipeline.

In closing, I would like to thank Kairbaan, Margarete and all the speakers for making the lunches such a success. Please e-mail Kairbaan with any suggestions for topics to be covered at next year's meeting.

Fiona Watt
President BSCB

Book reviews

Model Organisms In Drug Discovery

Pamela Carroll and Kevin Fitzgerald

As a researcher, how do you decide which model organism to work on? Do you pick the simple brewer's yeast, the genetically pliable fruit fly, the exotic zebra fish or the reliable laboratory mouse? By its very nature, a model is a simpler version of the real thing - meaning that no model is perfect so we can only pick a best fit. The result is that having chosen the organism that best suits your research, you tend to be faithful to it at all costs.

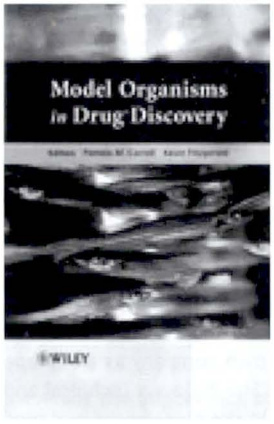
Model organism of choice during my PhD was developmental favourite, *Xenopus laevis*. Having grown fond of the claw-toed amphibians, I would experience a sinking feeling if I had to read a paper in the same field using yeast. Furthermore, I felt a slight feeling of awe when work had been done using mice. Essentially, although all our work had the same end goal - the elucidation of an important signalling pathway - their work felt alien to me. However, the holistic approach to research is important, and trawling through research on organisms you know little about is a necessary evil. Nowhere is this more true than in the field of drug discovery where the pace of research is particularly fast moving. So it will come as a relief to those involved that *Model Organisms In Drug Discovery* has summarised the major organisms of use in this area together with their relative strengths and weaknesses.

In the book there are chapters on all the commonly used organisms: *Saccharomyces cerevisiae*, *Caenorhabditis elegans*, *Drosophila*, zebrafish and mice. Written by people who work with the organism they are writing about, each chapter inevitably begins with background information and the advantages of choosing this model. Later in the chapter, there is the more interesting information on how this organism has contributed to drug discovery. And contribute they do — *C. elegans* to the study of depression, *Drosophila* to the study of metabolic illness, *S. cerevisiae* to the study of cancer and zebrafish to the study of behavioural physiology and angiogenesis, to name but a few examples. And when we look at the genetic tractability of these organisms and their capacity for drug screening, their potential seems unlimited.

Further on in the book, the focus changes to drug compound development and how data from different models can fit together to give a bigger picture, with case studies on Alzheimer's disease and inflammation drug discovery and also a chapter on screening the human genome.

In 2000, only about 500 genes from the entire human genome were being exploited as therapeutic targets (Drews, 2000 Science 287 1960). With our accelerated understanding of gene function resulting from progress in proteomics and genome analysis, drug discovery is likely to boom in the coming years. The use of these model organisms in drug discovery will also escalate, as will the amount of data in any given area. Consequently, understanding how model organisms can interplay and complement research will become even more essential.

Claire Bithell (claire_e_bithell@yahoo.co.uk)



Model organisms in drug discovery
Pamela M. Carroll and Kevin Fitzgerald
John Wiley & Sons,
October 2003
ISBN 0470 848936
302 pages

Essential Cell Biology Volumes 1 and 2

John Davey and J Michael Lord

The Practical Approach Series has provided over 200 protocol-based guides for researchers in labs throughout the world, covering a vast range of subjects and techniques. Each book is written by experts in the field and provides background to the subject, alongside tried and tested protocols and other supporting advice. Davey and Lord, both affiliated with the Department of Biological Science at the University of Warwick, present the latest in the sequence 'Essential Cell Biology', describing a range of key investigations divided into two volumes, the first concentrating on cell structure and the second on cell function.

The two books consist of twenty-two chapters, covering a variety of topics. Whole chapters are

dedicated to techniques directly relevant to the study of specific components of the cell, such as nucleic acids or lipids, and others to more routine techniques, such as the maintenance of cell cultures, microscopy, protein purification and gel electrophoresis. Each chapter starts with a brief overview and is then split into ever increasing sections and subsections. Each section has a brief description of what you need to know and why, followed by a more detailed discussion of a specific component and its relevance to the chapter topic. Throughout the chapters there are appropriate protocols found in boxes clearly separated from the text and at the end of each chapter there are a multitude of references, and further recommended reading for those wishing to delve deeper.

All the techniques relevant to cell biology are covered with no apparent omissions, starting from the simple and routine maintenance of cell cultures to the more complicated methods utilised in the study of gene expression, cell cycle and receptor biology. Those with an interest in cell biology and the applicability of its methods will find the books very ease to use with easily understandable diagrams and complex methods and systems explained with eloquence and clarity.

The two volumes are most welcome as they not only describe new and innovative techniques but also highlight more traditional 'proven' techniques. It is apparent how we can easily lose touch with the basic concepts of the specific methods we use, in particular those that we do not use regularly. A lack of familiarity with this practical knowledge can only hinder progress in research that spans a variety of experimental possibilities and furthermore a broader knowledge can only benefit research that crosses these scientific boundaries.

In summary, 'Essential Cell Biology' volumes 1 and 2 provide a collection of well-written techniques pertinent to cell biology and describe in detail relevant protocols and their applicability within this field. These books would be ideal for those just beginning their career at the lab bench and perhaps the more seasoned scientists wishing to broaden their minds with practical knowledge that surrounds the cell biology field.

Mark Howard, Dept of Physiology, Human Anatomy and Cell Biology, Liverpool University.
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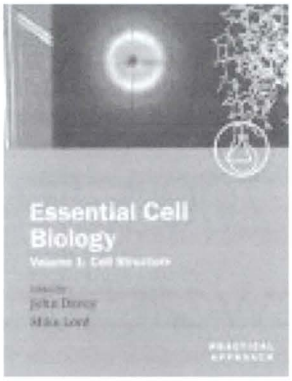

Essential Cell Biology
Volumes 1 and 2
John Davey and J Michael Lord
Oxford University Press, 2003
ISBN 0199638314; 422 pages

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Ecological Genetics
Lowe, Harris and Ashton, Blackwell Science

Genomics: Applications in human biology
Primrose and Twyman, Blackwell Science

Fundamental Bacterial Genetics
Trun and Trempy, Blackwell Science

A Practical Guide to Developmental Biology
Gibbs, Oxford University Press

Cancer and Inflammation
Novartis Foundation Symposium 256 Wiley

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Novartis Foundation Symposium 258 Wiley

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Reece, Wiley

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Buchanan, Gruissem and Jones, Wiley

Principles of Genome Analysis and Genomics
Primrose & Twyman, Blackwell Science

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Gullberg, Kluwer Academic/Plenum

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Ridley, Clark, Peckham, Wiley

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Crocker & Murray, Wiley

Advanced Genetic Analysis
Hawley & Walker, Blackwell Science

Chromosomes: organization and function
Sumner, Blackwell Science

Molecular Infection Biology: Interactions between microorganisms and cells *Hacker & Heesemann, Wiley*

Epigenesis Versus Preformation During Mammalian Development *Gardner, Solter & Surani, The Royal Society*

Tissue Engineering of Cartilage and Bone
Novartis Foundation Symposium 249 Wiley

BSCB Workshop: Cell Cycle Regulation of Meiosis

13–15 September 2004, International Centre for Life, Newcastle upon Tyne

Programme

Monday 13th

Session 1:	**Recombination and chromosomal proteins**
9:30-10:00	Neil Hunter, UC Davis, California
10:00-10:30	Christa Heyting, Wageningen
10:30-11:00	Christer Hoog, Stockholm
11:00-11:30	Coffee and trade exhibition
11:30-12:00	R. Jessberger, Mount Sinai School of Medicine, New York
12:00-12:20	Short talk
12:20-12:40	Short talk
12:40-14:00	Lunch and trade exhibition
Session 2:	**Loss of cohesion and aneuploidy**
14:00-14:30	Jose Barbero, Madrid
14:30-15:00	Nobuaki Kudo, IMP, Vienna
15:00-15:30	Frank Uhlmann
15:30-16:00	Tea and Trade exhibition
16:00-16:30	Sharon Bickel, Dartmouth College, New Hampshire
16:30-16:50	Patricia Hunt, Case Western Reserve, Cleveland
16:50-17:20	TBA
17:20-17:40	Short talk
17:40-18:00	Short talk
18:00-19:30	Poster session
19:30	Dinner and Bar

Tuesday 14th

Session 3:	**Regulation of meiosis by CDKs**
9:00- 9:30	J. Pines, Cambridge
9:30-10:00	Kirsten Benjamin, Berkeley, CA
10:00-10:30	Mariano Barbacid, Madrid
10:30-11:00	Coffee and trade exhibition
11:00-11:30	Christian Lehner, Germany
11:30-12:00	Peter Donovan, Johns Hopkins University, Baltimore
11:30-12:00	Joel Richter, Massachusetts Medical School
12:00-12:20	Short talk
12:20-12:40	Short talk
12:40-13:00	Short talk
13:00-14:00	Lunch and trade exhibition
Session 4	**Checkpoints**
14:00-14:30	Adele Marston (Angelika Amon), MIT, Boston
14:30- 15:00	Jean-Paul Javerzat, Bordeaux
15:00-15:30	James Maller, Howard Hughes Medical Institute, Colarado
15:30-16:00	Tea and trade exhibition
16:00-16:30	Peter Jackson, Stanford, CA
16:30-17:00	Bernard Maro, Paris
17:00-17:20	Short talk
17:20-17:40	Short talk
17:40-18:00	Short talk
18:00-19:00	Poster session
19:00	Dinner + Bar

Wednesday 15th

Session 5	TBA

The American Society for Cell Biology

44th Annual Meeting

December 4-8, 2004
Washington, DC

Harvey Lodish, *President*
Sandra Schmid, *Program Chair*
Norka Ruiz Bravo, *Local Arrangements Chair*

Keynote Symposium

Sunday, December 4, 6:00 PM

Cell Biology - Rising to Meet the Medical Challenges of the Next Century
Peter Kim, *Merck Research Laboratories*
Sir Paul Nurse, *The Rockefeller University*

Symposia

Sunday, December 5

Directed Cell Migration in Development
Susan McConnell, *Stanford University*
Erez Raz, *Max Planck Institute*
Pernille Rorth, *European Molecular Biology Laboratory*

The Mechanics of Membrane-Bound Machines
Peter Agre, *The Johns Hopkins University*
Jeff Dangl, *University of North Carolina*
Ehud Isacoff, *University of California, Berkeley*

Monday, December 6

Regulation of Cellular Programs
Raymond Deshaies, *California Institute of Technology*
Richard Kessin, *Columbia University*
Peter Walter, *University of California, San Francisco*

Small RNAs & Gene Regulation
Robin Allshire, *The Wellcome Trust Centre for Cell Biology, University of Edinburgh*
Jim Carrington, *Oregon State University*
Thomas Tuschl, *The Rockefeller University*

Tuesday, December 7

The Cytoskeleton & Spatial Organization in Cells
Joan Brugge, *Harvard Medical School*
David Drubin, *University of California, Berkeley*
Joel Rosenbaum, *Yale University*

Modeling of Complex Cellular Behaviors
June Nasrallah, *Cornell University*
Garrett M. Odell, *University of Washington*
John Tyson, *Virginia Tech*

Wednesday, December 8

Cell Biology of Aging
Judith Campisi, *Lawrence Berkeley National Laboratory*
Cynthia Kenyon, *University of California, San Francisco*
Doug Wallace, *University of California, Irvine*

Minisymposia

Minisymposia will be scheduled eight each afternoon, Sunday through Wednesday of the Annual Meeting. Four additional speakers for each minisymposium will be selected by the co-chairs from among abstract submissions.

Asymmetry in Development
Juergen Knoblich, *Institute of Molecular Biotechnology, Vienna, Austria*
Geraldine Seydoux, *The Johns Hopkins University*

Autophagy & Organelle Turnover
Beth Levine, *Columbia University*
Yoshinori Ohsumi, *National Institute for Basic Biology, Okazi, Japan*

Cargo Selection & Vesicle Formation
Bruno Antonny, *Institut de Pharmacologie Moléculaire & Cellulaire, Valbonne, France*
Linton Traub, *University of Pittsburgh School of Medicine*

Cell Biology of the Immune System
Janice Blum, *Indiana University*
Daniel Davis, *Imperial College London, UK*

Cell Biology of Intracellular Pathogens
Michel Desjardins, *University of Montréal, Canada*
Julie Theriot, *Stanford University*

Cell Biology of the Neuron
Shelley Halpain, *The Scripps Research Institute*
Josh Kaplan, *Massachusetts General Hospital*

Cell Cycle
Susan Forsburg, *The Salk Institute for Biological Studies*
Thomas McGarry, *Northwestern University*

Cell Junctions & Polarity
Andre Le Bivic, *Developmental Biology Institute of Marseilles, France*
Enrique Rodriguez-Boulan, *Cornell University*

Cell Migration & Adhesion
Margaret Frame, *Beatson Institute for Cancer Research, Glasgow, UK*
Yu-li Wang, *University of Massachusetts Medical School*

Cell Regulation Through Extracellular Proteolysis
Carl Blobel, *Memorial Sloan-Kettering Cancer Center*
Marcos Milla, *University of Pennsylvania*

Chemical Biology
Ben Cravatt, *The Scripps Research Institute*
Barbara Imperiali, *Massachusetts Institute of Technology*

Chromatin Structure & Functional Organization of the Nucleus
Shelley Berger, *The Wistar Institute*
Jan Ellenberg, *European Molecular Biology Laboratory, Heidelberg, Germany*

Control of Gene Expression
Ronald Breaker, *Yale University*
Stephen Buratowski, *Harvard Medical School*

Cytokinesis & Cellularization
Ahna Skop, *University of Wisconsin, Madison*
William Sullivan, *University of California, Santa Cruz*

Cytoskeletal Dynamics
Arshad Desai, *University of California, San Diego*
Laura Machesky, *University of Birmingham, UK*

Diverse Cellular Functions for Ubiquitin & Related Proteins
Erica Johnson, *Thomas Jefferson University*
Wes Sundquist, *University of Utah*

ECM Biogenesis & Function
Enid Neptune, *The Johns Hopkins School of Medicine*
Peter Yurchenco, *UMDNJ-RW Johnson Medical School*

Establishment & Maintenance of Membrane Subdomains
Rob Parton, *University of Queensland, Australia*
Catherine Rabouille, *UMC Utrecht, The Netherlands*

Intermediate Filaments
Robert Goldman, *Northwestern University*
Harald Herrmann, *German Cancer Research Center*

Intraflagellar Transport in Human Health
Martina Brueckner, *Yale University*
Gregory Pazour, *University of Massachusetts Medical School*

Microtubule-Based Motility
David Burgess, *Boston College*
Sarah Rice, *Northwestern University*

Molecular Microscopy in Living Cells
Klaus Hahn, *The Scripps Research Institute*
John Heuser, *Washington University in St. Louis*

The Nuclear Envelope: Structure & Transport Mechanisms
Tom Misteli, *The National Cancer Institute/NIH*
Mary Moore, *Baylor College of Medicine*

Procaryotic Cell Biology
Piet de Boer, *Case Western Reserve University*
Kit Pogliano, *University of California, San Diego*

Protein Translocation Across Membranes
Arthur Johnson, *Texas A&M University System Health Science Center*
Carla Koehler, *University of California, Los Angeles*

Secretory Organelles & Regulated Exocytosis
Michael Marks, *University of Pennsylvania*
Aaron Turkewitz, *University of Chicago*

Signal Transduction in Development
David Greenstein, *Vanderbilt University*
James Posakony, *University of California, San Diego*

Signal Transduction Networks
Anton Bennett, *Yale University*
Margaret Chou, *University of Pennsylvania*

Signaling in Cell Proliferation & Death
Jean Wang, *University of California, San Diego*
Jeff Wrana, *Samuel Lunenfeld Research Institute, Mt. Sinai Hospital, Toronto*

Stem Cells
Alejandro Sánchez Alvarado, *University of Utah*
Sean Morrison, *University of Michigan*

Systems Biology: Theory & Practice
Joseph Ecker, *The Salk Institute for Biological Studies*
Trey Ideker, *University of California, San Diego*

Thermal & Mechano-Sensation
Monica Driscoll, *Rutgers University*
Ardem Patapoutian, *The Scripps Research Institute*

To register, submit an abstract or for more information, contact the ASCB at (301) 347 9300 • ascbinfo@ascb.org • www.ascb.org

Other forthcoming meetings

2004

ELISPOT technology, tricks and triumphs
9 July 2004, Birkbeck College, London
www.euroscicon.com/elispot.html

Molecular Mechanisms Influencing Aggressive Behaviours
23 July 2004, Royal Society of Medicine, London
Novartis Foundation
openmtg@novartisfound.org.uk

BioScience2004 - From Molecules to Organisms
18-22 July 2004, SECC Glasgow
info@BioScience2004.org

12th International Conference on Intelligent Systems for Molecular Biology and 3rd European Conference on Computational Biology 2004
31 July – 5 August 2004, SECC, Glasgow
www.iscb.org/ismbeccb2004

The 5th UK Cord Blood Immunology Group Meeting
3 September 2004
www.ukcbig.org.uk

ELSO
4–8 September 2004, Nice
Incorporates International Society for Cell Biology's quadrennial meeting

BSCB Autumn Meeting
Cell Cycle Regulation of Meiotic Division
12-14 September 2004, Newcastle University
Organizer: Mary Herbert (Newcastle)

9th European Workshop on the Molecular Genetics and Cytogenetics of Solid Tumours
16–19 September 2004, Brno, Czech Republic
www.ewst-brno.cz

New applications of Flow Cytometry
12 November 2004
www.euroscicon.com/flowcyt.html

Mast cells and basophils: development, activation and roles in allergic/autoimmune disease
19-20 November 2004, Royal Society of Medicine, London
Novartis Foundation
openmtg@novartisfound.org.uk

Live cell imaging
19 November 2004, Centre Parcs, Elveden Forest
www.euroscicon.com/livecellimaging.html

2005

BSCB Annual Spring Meeting: The Asymmetric Cell
6-9 April 2005, Warwick University
Organizer: Jordan Raff Joint with BSDB

BSCB Autumn Meeting: The Cell Biology of Pathogens
Heriot Watt
Organiser: Michael Way

2006

Spring 2006 meeting in York
We are pleased to announce that this meeting will be held jointly with the BSDB
(Mon 20) Tues 21 – Thurs 23 March 2006

Techniques in Molecular Biology
University of Hertfordshire
College Lane, Hatfield
Herts AL10 9AB UK.
www.herts.ac.uk/natsci/STC

Unless otherwise noted, details and application forms from Dr Ralph Rapley, School of Life Sciences,
tel:(01707) 285097 fax:286137
e-mail:R.Rapley@herts.ac.uk

RNA Extraction and Analysis
A one-day laboratory/lecture course,
24 June 2004

PCR Methods and Applications
A one-day laboratory/lecture course,
25 June 2004

Introduction to DNA and protein bioinformatics
A two-day practical/lecture course,
29-30 June 2004

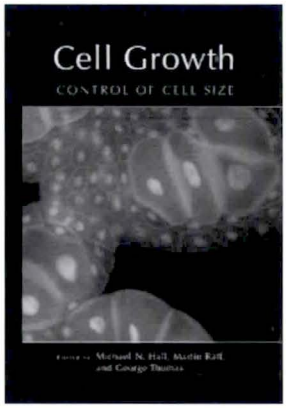
Immunology: Basic terms and techniques
A one-day laboratory/lecture course,
1 July 2004
Contact Mrs Vera Jones,
Science Training Centre,
tel:(01707) 284590 fax:286137
e-mail: v.g.jones@herts.ac.uk

Molecular Biology: Basic terms and techniques
A one-day laboratory/lecture course,
2 July 2004

Proteins and proteomics
A two-day laboratory course,
6–7 September 2004
Contact Prof. John Walker,
School of Life Sciences
tel:(01707) 284546 fax:284510
e-mail:J.M.Walker@herts.ac.uk

Nucleic acids and genomics
A three-day laboratory course
8-10 September 2004
Contact Dr Virginia Bugeja,
School of Life Sciences.
tel: (01707)284590 fax: 286137
e-mail:V.Bugeja@herts.ac.uk

JUST PUBLISHED



Cell Growth

Michael N. Hall, *Biozentrum, University of Basel*, **Martin Raff**, *University College London* and **George Thomas**, *Friedrich Miescher Institute*
Hardcover, 652pp. 087969 6729,
April 2004, £100.00

Description:

Written by internationally-renowned experts, this book discusses cell growth in the context of both development and cell division. It focuses on individual molecules and mechanisms that control cell size and describes cell growth in specific tissues. This volume serves as a valuable reference for established scientists in the field, as well as a superb introduction for those with more general interests in animal and plant cell biology.

Cold Spring Harbor Laboratory Press Europe

Bloxham Mill, Barford Road, Bloxham, Oxfordshire, OX15 4FF, UK Tel +44 (0) 1295 722874 Fax +44 (0) 1295 722875 www.cshlpress.co.uk

BSRA Annual Scientific Meeting

Call for Abstracts
The British Society for Research on Ageing Annual Scientific Meeting will be held at Birmingham University on Wednesday 14th July 2004. The theme is 'Ageing Cell: Ageing Body' and abstracts are invited from scientists working in all aspects of ageing.

The speakers and topics include Dr Heidi Scrable (University of Virginia) on p53 and lifespan regulation; Professor Yuti Chernajovsky (Queen Marys Medical School, University of London) on stem cells and regenerative medicine; Dr Richard Aspinall (Imperial College London) on thymic atrophy; Professor Angus Walls (Newcastle University) on dental health and ageing. Professor Linda Partridge (UCL) will give the 2004 Lord Cohen Medal lecture.

Please send abstracts of your work for presentation at this meeting to Dr Janet Lord (J.M.Lord@bham.ac.uk) as a Word attachment

Abstracts will be read by 2 members of the BSRA Executive and 4 will be chosen for oral presentation. Delegates selected to give oral presentation will have their travel expenses paid by the BSRA.

Closing date for receipt of abstracts: **5pm June 1st 2004**
Authors will be notified before June 14th whether their work has been chosen for oral or poster presentation.

Registration fee (includes lunch): BSRA members: £40; Student members £30. Non-members: £75.

Important Addendum
Four places are vacant on the Executive of the BSRA. Those who wish to be a member of the Executive must be proposed and seconded by members of the BSRA and these must be sent along with biographical details (250 words max) to the Secretary of the society Julie McLeod (Julie.McLeod@uwe.ac.uk) by April 1st 2004

The British Society for Cell Biology
Minutes of the Annual General Meeting
Thursday 1st April 2004

Apologies
Apologies for absence were received from the following Committee members: Angus Lamond, Joan Marsh, Tony Ng, Jordan Raff, Elizabeth Smythe.

Minutes of the last meeting
Minutes of the AGM held on 9 April 2003 and published in the summer 2003 Newsletter were approved as correct.

Election of new committee members
David Stephens, Vania Braga, Margarete Heck and Elizabeth Smythe were elected to serve on the Executive Committee. Roy Quinlan and Jordan Raff were re-elected for a second term of three years.

President's report
The success of the Spring 2004 scientific meeting was affirmed, with 304 delegates attending and a record number of poster presentations. This was the first time for many years that the Society had not held the meeting jointly with BSDB and it was gratifying to note its popularity.

Attention was drawn to two lunches held for the first time this year: one devoted to Careers in Cell Biology and the other on Women in Cell Biology. The President warmly thanked Kathryn Ayscough for the efforts she had made for the Society, first as editor of the Newsletter, then administering the Honor Fell Travel Awards. She also thanked Charles Streuli for his help in the past year in managing a smooth transition as outgoing meetings secretary, recalling again how much he had done to ensure outstanding scientific meetings based on sound professional management.

Secretary's report
It was confirmed that the BSCB Committee maintained and had recently reviewed the Society's risk register. It was reported that all foreseeable risks had been identified and mitigated. The membership was asked to consider the position of the officers as charitable Trustees: they were personally liable financially for any losses that may arise as a consequence of the Society's activities. A list of newly subscribed members was presented to the AGM for formal adoption.

Treasurer's report
The accounts for the calendar financial year 2002 were presented and approved. It was explained that because the Society's turnover has exceeded £250,000 in 2002 and 2003, it was required in law that the Society's accounts be fully audited. This was a lengthy process that could not be concluded in the three months between financial close and the AGM. Interim accounts were presented that showed that the Society's financial position was comparable to the previous year, with around £160,000 in reserves. The BSCB Committee's view that this amount of reserves was prudent in order to provide a financial cushion against the unexpected failure of a scientific meeting for whatever cause, including force majeure, was expressed and agreed. It was hoped that by various means the Society's financial turnover might be brought beneath the £250,000 threshold without decreasing the Society's activities. The undesirability of full audit was partly due to expense, but more importantly to the burden it placed on the Honorary Treasurer.

The meeting agreed to the provision of liability insurance for the Society's Trustees at a cost of around £1,000 for cover up to £1million. It was made clear that this cover applied only if Trustees had not been negligent or criminal.

Meeting Secretary's report
It was announced that the Autumn 2004 meeting would be held in Newcastle on the topic of meiosis and that the Spring 2005 meeting, The Asymmetric Cell, would be held in Warwick jointly with the BSDB.

Any other business
Kathryn Ayscough briefly outlined the Society's Travel Schemes: the Honor Fell Awards, the Eastern European Bursaries and the Schools' Bursaries. Details may be found on the Society's website and in the Newsletter.

Denys Wheatley announced that the International Society for Cell Biology's quadrennial meeting would be held as part of the ELSO meeting in Nice in September 2004 and that travel bursaries were available.

BSCB President's Report

I am writing this just after the BSCB Spring meeting. As those of you who attended know, it was a great success and any worries we might have had about hosting a meeting without the BSDB turned out to be groundless. This year's innovations, which you can read about elsewhere in the newsletter, were a talk by Lord Sainsbury on government science policy and lunchtime workshops on careers and women in cell biology. I am deeply grateful to David Archer for organising Lord Sainsbury's visit, to Kairbaan Hodivala-Dilke for running the careers lunch, and to Margarete Heck for arranging the women's lunch. The feedback we received on these events was so positive that we are planning to incorporate similar activities in next year's spring meeting (which will be organized jointly with the BSDB).

I am delighted to welcome our new committee members, Liz Smythe, Vanya Braga, David Stephens and Margarete Heck. I would also like to thank our outgoing members, Kathryn Ayscough and Charles Streuli, for all their hard work on behalf of the BSCB. Kathryn revamped the Newsletter several years ago and more recently she has been handing out the BSCB's travel awards. Charles was our meetings secretary and transformed the running of the meetings, for example by recruiting external companies to organise the trade exhibition and registration. The committee will sadly miss Kathryn and Charles.

I am pleased to report that the BSCB continues to attract a substantial number of new members and that, thanks to Mark Marsh's heroic efforts, we remain solvent! We are very grateful to our sponsors for their financial support, in particular to Garland for sponsoring an annual plenary lecture and to the Company of Biologists, whose generous donations underpin our conferences and our travel awards.

In closing, I would like to remind you that we welcome your feedback and ideas on any aspect of the BSCB. Please nominate recipients of the Hooke medal and propose committee members. Please suggest speakers and topics for our meetings, and volunteer to run individual sessions or entire autumn meetings!

Fiona M. Watt
London, 9th April 2004.

New members

Acquaviv, Claire
Adams, Matthew
Ahmed, Tasneem
Ampatzidou, Eleni
Anderson, Tom W.
Anderson, Victoria
Andrews, Robert
Ang, Cheng-Eng
Bain, Dr. Mark
Bakatselou, Dr. Christina
Banks, Viki
Barros, Teresa
Bennion, Peter
Betin, Virginie
Bhadal, Navneet
Bhattacharyya, Dr. T.
Blood, Katherine
Bond, Jennifer
Boult, Jessica
Brand, Dr. Andrea H.
Brekasis, Dimitris
Bresun, Claire
Brette, Dr. Fabien
Briston, James S.
Buckley, Gemma
Burks, Patrick J.
Chamberlain, Dr. Luke
Chang, Hen-Yu
Chen, Min-Che
Cheung, Shing-Hu
Chiu, Maybo
Chu, K.M.E.
Chung, Jon
Clay, Lorena
Cooray, Sadani
Craddy, Paul
Curry, Jayne
Delves, Michael
Dicara, Danielle
Ding, Dr. Yanning
Dodgson, James A.
Domin, Alex
Dormann, Dr. Dirk
Duval, Cedric
Ecclestron, Lisa
El-Khamisy, Sherif M.F.
Farr, Helen
Ferber, Emma
Figgitt, Martin
Fitzgerald, Daniel J.
Florindo, Claudia S.R.
Foster, Steven
Fraile-Ramos, Alberto
Frampton, Jonathan
Freeman, Stephen
Gambus, Agnieszka
Garcia-Maya, Dr. M.
Garcin, Daphne
Gártner, Dr. Annette
Gheorghe, Nana
Goodrem, Peter
Grabarz, Anna
Grierson, Dr. Andrew
Griffiths, Prof. Gillian
Groeger, Dr. Gillian
Haddad, Shaden
Hagting, Dr. Anja
Harrison, Lea-Anne
Herbert, Dr. M.
Holt, Sarah V.
Hood, Fiona
Huisman, S.M.
Hung, Chao-Chun
Iles, Natasha
Jazayeri, Ms Mona
Jeffers, Liam J.
Jeffries, Dr. Tim
Jordan, Philip
Keho, Dr. Oksana
Keim, Melanie
Kendal, Dr. C.
Kenny, Anna
King, Matthew A.
Koop, Lars W.
Krybasik, Davia
Krzyzanowska, Agnieszka
Lalli, Dr. Giovanna
Langridge, Paul
Leverentz, Dr. M.K.
Lindon, Dr. Catherine
Lioultcheva, Katya
Lowe, Emma T.
Lucas, Eliana
MacFadyen, John R.
Mann, Dr. Christopher
Manneville, Jean-Baptiste
Mao, Dr. Guojie
Marshall, Lorna
Martin, Yella
McAinsh, Dr. Andrew
Meaburn, Karen
Milward, Dr. Kelly
Mingrino, Roberto
Moreira-Leite, Flávia F.
Morrison, Dr. Ciaran
Morrow, Chris
Morton, Penny
Mulvihill, Dr. D.
Munding, Dr. Christine
Nystrom, Maria L.
O'Dea, Dr. Shirley
Osinubi, Dr. Abraham
Panbianco, Costanza
Pancholi, Dr. S.
Peel, Nina
Pelizon, Cristina
Perez-Nadales, Elena
Piper, Sian
Pollitt, Alice
Powley, Ian
Progias, Pavlos
Rees, Jonathan R.E.
Richardson, Josephine
Roberts, Dr. Sally
Salhimi, Salizawati Muhamad
Schwarz, Nele
Scothern, Anthea
Segal, Dr. Marisa
Signoret, Dr. Nathalie
Simpson, John
Singh, Surjeet
Smith, Stephen D.
Spencer, Eleanor
Steele, Dr. Islay
Tallada, Victor A.
Tavares, Dr. Alvaro A.M.
Taylor, James
Tholozan, Frederique
Thomas, Neil M.
Thomson, Alistair M.
Tsai, Hsiao-Lun
Tulchinsky, Dr. Eugene
Waby, Jennifer S.
Wakefield, Dr. James G.
Wavre, Siléne T.
Webber, Daniel
Wheatley, Dr. Sally P.
Woods, Emma
Yang, Xutong
Zhou, Dr. Guang-Qian

Honor Fell Travel Awards

Jointly funded by the BSCB and the Company of Biologists

Honor Fell Travel awards are made to provide financial support for younger BSCB members at the beginning of their research careers to attend meetings. They are aimed at PhD students and postdocs. 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 registration and accommodation costs will be made, even in excess of £300), up to £400 for European meetings and up to £500 for meetings in the rest of the world.

Awards are made throughout the year.

The following rules apply:

- Awards are not normally made to applicants over 35 years of age.
- Normally, no applicant will receive more than one award in each calendar year and three in toto.
- The applicant must be contributing a poster or a talk.

Applications should be sent to:
Jordan Raff, Wellcome/Cancer Research UK Institute, University of Cambridge, Tennis Court Road, Cambridge CB2 1QR.

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**

First-year PhD students should send a copy of their BSCB membership application.

Application for an Honor Fell travel award

Full name and Work address

(write clearly – this will be used as a return label)

.....

.....

.....

.....

.....

E-mail address: .....

Age: .....

BSCB Membership number: .....

The years of previous Honor Fell awards:

.....

Degrees (with dates): .....

.....

Present position: .....

.....

Key publications (2) or research interests:

.....

.....

.....

Number of meetings attended last year:

.....

Meeting for which application is made (title, place, and date):

.....

.....

.....

Estimated expenses: Travel: .....

Subsistence: .....

Registration: .....

Have you submitted any other applications for financial support?

YES NO (delete as applicable). If YES, give details including source and whether these monies are known to be forthcoming:

.....

.....

Supporting statement by Head of Department:

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.

Signature: .....

Name: .....

Applicant's signature: .....

Name: .....

Undergraduate bursaries to attend the BSCB Spring Meeting

Administered through the Honor Fell Travel Award Scheme
Jointly funded by the BSCB and the Company of Biologists

Undergraduate Bursaries are made to provide financial support for undergraduates currently studying cell biology or a related degree subject to attend the BSCB Spring Meeting. The award will cover the registration and accommodation costs of attendance. Travel costs are expected to be met by the University that the undergraduate attends.

The following rules apply:

- Awards are made to undergraduates in their final year of study.
- Applicants must be studying for a Cell Biology or related degree.
- Applications must be accompanied by a half page justification from the student **and** by a supporting statement from the supervisor of studies or course organiser.

Applications should be sent to: Jordan Raff, Wellcome/Cancer Research UK Institute, University of Cambridge, Tennis Court Road, Cambridge CB2 1QR.

All applications must contain:

- **the completed and signed application form (below)**
- **statements from both the student and course organiser.**

- The statement from the student should include details on why they wish to attend, what they hope to gain and also aspects of cell biology that to date they have found interesting.
- The statement from the course co-ordinator should indicate the course being undertaken by the student and reflect the calibre of the student, their enthusiasm for the subject and why they believe the student will benefit from the experience of attending the meeting.

Application for an undergraduate Honor Fell travel award

Full name and Work address

(write clearly – this will be used as a return label)

.....

.....

.....

.....

.....

E-mail address: .....

Age: .....

Institution attended: .....

Degree course: .....

.....

Main cell biological interests: .....

.....

Supporting statement by Head of Department or Course Co-ordinator: This applicant requires these funds and is worthy of support. The University/Department also agrees to pay the travel costs for the named undergraduate to attend the meeting.

Signature: .....

Name: .....

Applicant's

signature: .....

Name: .....

DEADLINE FOR APPLICATIONS: 31 January 2005

Application to join the BSCB

Please complete and return along with a signed Direct Debit mandate to:
Margaret Clements, Department of Zoology, Downing Street, Cambridge, CB2 3EJ.

Name: ..... Mr/Ms/Mrs/Dr/Prof

Position: ..... Male/Female

Academic qualifications: .....

Email: .....

Telephone: .....

Fax: .....

Address: .....

.....

..... Postcode: .....

Research interests: .....

.....

Membership of other societies:

.....

BSCB Member	Proposer	Seconder
Name:	.....	.....
Membership Number:	.....	.....
Signature:	.....	.....

Applicants without proposers should enclose a brief CV

The society has a searchable database of its members on the BSCB web page. This list is not sold or distributed in any other way. Your details will be included only if you tick this box ☐

Applicant's signature: ..... Date: .....

British Society for Cell Biology

DIRECT Debit

Please complete parts 1, 2, 3, 4 and 6 to instruct your branch to make payments directly from your account. Then return the form to: British Society for Cell Biology, c/o Margaret Clements, Department of Zoology, Downing Street, Cambridge, CB2 3EJ.

To The Manager, Bank/Building Society

.....

Address

.....

.....

..... Postcode .....

Originator's identification number | 9 | 4 | 1 | 4 | 5 | 1 |

FOR BSCB USE ONLY

This is not part of the instruction to your bank/building society

5. Originator's reference number (for office use only) BRITSO | | | | |

1. Please write the full postal address of your branch in the box above.

2. Name of account holder

.....

3. Account number | | | | | | | | |

4. Sort code | | | — | | | — | | |

Banks/Building Societies may refuse to accept instructions to pay direct debits from some types of account.

6. Instructions to the Bank or Building Society

Please pay the British Society for Cell Biology Direct Debits from the account detailed on this Instruction subject to the safeguards assured by the Direct Debit Guarantee.

Signature .....

Date .....

This guarantee should be detached and retained by the payee

The Direct Debit guarantee

- This guarantee is offered by all Banks and Building Societies that take part in the Direct Debit scheme. The efficiency and security of the scheme is monitored and protected by your own Bank or Building Society.
- If the amounts to be paid or the payment dates change, the BSCB will notify at least 14 days in advance of your account being debited or as otherwise agreed.
- If an error is made by the BSCB or by your Bank/Building Society, you are guaranteed a full and immediate refund from your branch of the amount paid.
- You can cancel a Direct Debit at any time, by writing to your Bank or Building Society. Please also send a copy of the letter to the BSCB.

British Society for Cell Biology
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jpl10@cam.ac.uk
Appointed 1999; retires 2005

Dr Roy Quinlan
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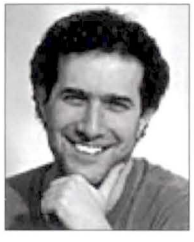
Tel: 01382 344752
Fax: 01382 322558
Appointed 2001; retires 2007



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The BSCB newsletter is published twice a year in June and December.

Submission:
If you have an idea for an article please e-mail the editor a brief outline first. Appropriate colour images are welcomed for consideration for the front cover.

It is preferable to send all articles, reports and images by e-mail (though alternatives can be arranged after contacting the editor). Attachments for text are best received in Microsoft Word and images as 200-300 dpi JPEG/TIFF or Photoshop files. Hard copy images can also be sent.

Submission of articles and images should be made to
Dr Joan Marsh, John Wiley & Sons, International House, Ealing Broadway Centre, London W5 5DB. Tel: 020 8326 3846. Fax: 020 8326 3802. e-mail: jmarsh@wiley.co.uk

Meetings:
Please note there is no charge to advertise a scientific or educational meeting. Please contact the editor with details of any meeting you wish to advertise.

Deadlines:
For the final version of articles and other materials and adverts is 1 April for publication in June and 1 October for publication in December.

Please note the first version of any material must be received by the editor at least 2 weeks prior to this deadline so that any changes can be made.

Advertising Information
Single advertisement:
Back cover Black and White £275; Colour £425
Inside front cover Black and White £275
Full inside page, black and white only £220
$^1/_2$ Inside page, black and white only £110
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Four advertisements, to cover two years. The costs are reduced by 30%.

Supply either on a zip disk or CD for Macintosh (Quark version 4, Quark version 3.32, JPG, TIF or PSD) with margins: top 26mm, left/right/bottom 20mm. Page size 218x280mm. Alternatively, supply film: single/four colour positive, right reading, emulsion down, screen 133x150.

For further information on commercial advertising contact: Margaret Clements, BSCB assistant, Department of Zoology, Cambridge University, Downing Street, Cambridge CB2 3EJ. Tel: +44 (0)1223 336655 Fax: +44 (0)1223 353980, e-mail: zoo-jeb01@lists.cam.ac.uk

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Overseas members paying by bankers draft:
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If you are still paying by standing order, please cancel it and set-up direct debit (form on p29). Those members who do not have a UK bank account should pay by bankers draft in pounds sterling payable to 'the British Society for Cell Biology'.

New members should complete an application form to join the BSCB (form on p28) and include it with their subscription dues. Send direct debit forms, bankers drafts and any membership application forms to Margaret Clements, Department of Zoology, Downing Street, Cambridge, CB2 3EJ.

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

The discounted prices are as follows:

- *Journal of Cell Science:* paper only $269/£163; online only $69/£42; paper and online only $338/£205
- *Journal of Experimental Biology:* paper only $248/£150; online only $69/£42; paper and online only $317/£192.
- *Development:* paper only $292/£177; online only $69/£42; paper and online only $358/£217

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

Journal	BSCB rate	Standard rate
The Anatomical Record	$150	*
BioEssays	$99	$160
Cell Motility and the Cytoskeleton	$150	$425
Developmental Dynamics	$125	$165
Genesis	$60	$99
Journal of Cellular Biochemistry	$350	*
Journal of Morphology	$175	*
Microscopy Research and Technique	$295	$595

* No standard individual rate available; only available to institutions

NB: The price for the *Journal of Morphology* is now $175. If there are any members who have ordered the journal at the $150 rate, those orders will be honored.

Postmaster and General Inquiries
Send changes of address, amendments, and general queries to: Margaret Clements, BSCB assistant, Department of Zoology, Cambridge University, Downing Street, Cambridge CB2 3EJ. Tel: +44 (0)1223 336655 Fax: +44 (0)1223 353980, E-mail: zoo-jeb01@lists.cam.ac.uk

Invoices: send to: Professor Mark Marsh, Cell Biology Unit, MRC Laboratory for Molecular Cell Biology, University College London, Gower Street, London WC1E 6BT.

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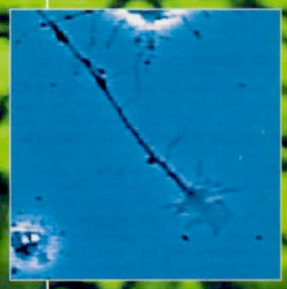

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