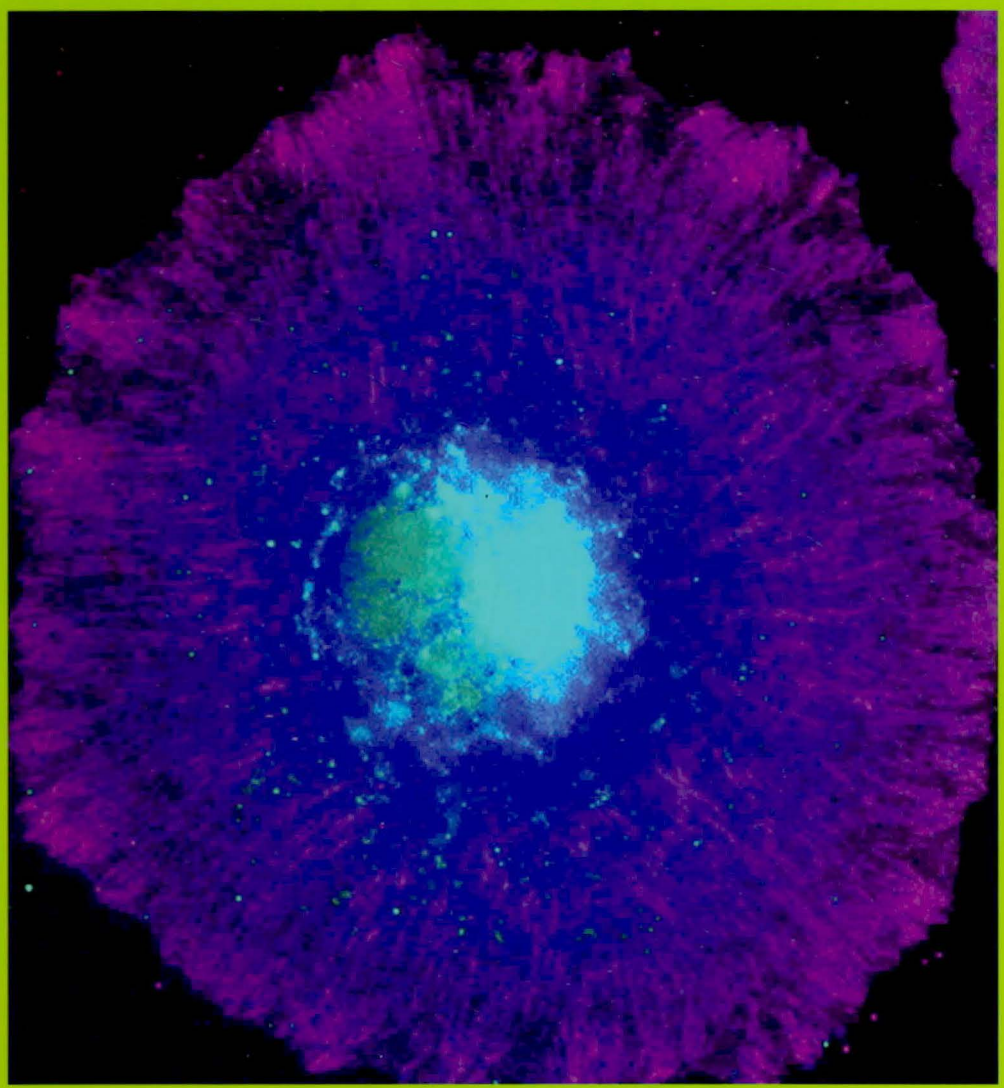
BSCB NEWSLETTER



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BRITISH SOCIETY FOR CELL BIOLOGY

BSCB

June 1999

The BSCB newsletter is published twice a year, June and December

Guidelines to Contributors
These guidelines apply to commissioned articles and images, to articles and images that members of the BSCB or interested parties would like to submit to the newsletter (see invitation below), and to material from members of the BSCB committee. The BSCB newsletter also accepts commercial advertisements – see advertising information.

Submission of text: Send the first version in the body of a normal e-mail (not as an attachment). If you do not have access to e-mail, please contact Kathryn Ayscough (address below). Once this has been accepted, submit the final version including all editorial changes, on a floppy disk (preferably in Microsoft Word) and a printed hard copy. Write your name, title of the article, and contact address on the floppy disk. If possible please include one or more images to accompany the submitted text (for example, a picture of the author(s), a picture to illustrate part of the text). Note for members of the BSCB committee, any standard requirements for the newsletter need only be submitted by e-mail and the first/final version requirement is not applicable. For non-standard articles from the Committee, the full procedure applies as above.

Submission of Images: submit on a floppy disc, or as a high quality print. For images submitted on disk a printed hard copy must also be supplied (this is for layout purposes only and need not be high quality). Write your name, title of the image, and contact address on the floppy disk and on the reverse of the printed hard copy. Indicate the top of the image. A figure legend should be supplied on a disk and as a hard copy. Electronic files may be JPEG, TIFF or photoshop (300dpi preferred). Line drawings may also be PICT or Adobe illustrator. Preference is given to colour images for the front cover. Images for inside pages may be supplied as grey scale or colour, but will be printed as greyscale.

An Invitation to Submit Articles and Images
If you have an idea for an article please e-mail a brief outline first. Images for consideration for the front cover and inside pages are very welcome. Please submit as above. Please also state whether the image is for consideration for: front cover only, inside pages only or front cover first choice, with automatic consideration for inside pages second choice. Suggestions for images are those that highlight the research in your laboratory, a recent publication from your group, or a review of recent progress in a field.

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
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Four advertisements, to cover two years. The costs are reduced by 30%. We are also happy to enclose flyers with the Newsletter. For a single page, the cost is £165; additional pages are £50.00. For booklets, we negotiate on weight.
Mailing List (Peel-off Labels) – £225.00 + p&p

Supply either on a floppy or zip disk for Macintosh (Quark version 4, Quark version 3.32, JPEG, tiff or photoshop) with margins: top 26mm, left/right/bottom 20mm. Page size 218x280mm. Alternatively, supply film: single/four colour positive, right reading, emulsion down, screen 133x150. **Please note, there is only one colour advert slot per newsletter.**

For further information on commercial advertising contact: Margaret Clements, BSCB assistant, Department of Zoology, Cambridge University, Downing Street, Cambridge CB2 3EJ. Tel: +44 1223 336655 Fax: +44 1223 353980, E-mail: ZOO-JEB01@LISTS.CAM.AC.UK

There is no charge to advertise a scientific or educational meeting. Submit as for guidelines for contributors, above.

Submit all articles, images, committee items, and adverts, as per instructions to:
Dr Kathryn Ayscough, MSI/WTB Complex, Dept of Biochemistry, University of Dundee, Dundee DD1 5EH.
Tel 01382 345689 (office); fax 01382 322558
E-mail: kayscough@bad.dundee.ac.uk

Deadlines for receipt of the *final* accepted version of articles and all other materials, and adverts:
[Note, the first version of articles from any contributor and any unformatted meetings information from the Committee should arrive two weeks before these dates].
April 7 for publication in June issue, or 6 weeks after the commission of an article, which ever is the earliest.
October 1 for publication in December issue, or 6 weeks after the commission of an article, which ever is the earliest.

Subscription information
Regular member, direct debit £20
Student or teacher member, direct debit £8
Regular member, bankers draft £25
Student or teacher member, bankers draft £12

Pay by direct debit (form on p30). If you are still paying by standing order, please cancel it and set-up direct debit. 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 also complete an application form to join the BSCB (form on p29) 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 3DY.

BSCB members benefit from discounted journal subscription rates. Where prices are given, the full price is listed first, followed by the discounted member price

Current Opinion in Cell Biology	20% discount
Journal of Cell Science	£142/106 (paper **or** online); £163/122 (paper **and** online)
Current Biology	20% discount
Development	£231/173 (paper **or** online); £266/199 (paper **and** online)
Journal of Experimental Biology	£165/123 (paper **or** online); £190/142 (paper **and** online)

Postmaster and General Inquiries
Send changes of address, amendments, and general queries to:
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Fax: +44 (0)1223 353980, E-mail: ZOO-JEB01@LISTS.CAM.AC.UK

Invoices: send to Stuart Kellie, BSCB treasurer, Yamanouchi Research Institute, Littlemore Hospital, Oxford OX4 4XN.

BSCB Newsletter
June 1999

Editorial

Firstly, a welcome to all the new members of the BSCB. Many of you joined just prior to this year's spring meeting in Manchester so, thanks also to the organisers of the meeting for getting such a great programme together. We would like however to try and re-welcome some of our missing members – many of whom are listed on pages 29–30 of the newsletter. Any ideas about their whereabouts would be gratefully received. Also, a plea for all of you to send in your email addresses which we hope will allow better contact with the membership.

A reminder about the next BSCB meeting 'The Endoplasmic reticulum' which is being held in Bristol, Sept 21–24,1999. More details and a registration form are later in the newsletter.

Finally, thanks as always to the committee for their hard work this year and for anyone who has contributed to this newsletter and to the sponsors of the BSCB. Please remember, if any of you want to send in articles for the newsletter – whether a meeting report, details of your wonderful cell biology web-site or your comments on Government policies which affect cell biology in this country – all are gratefully received.

The Editor

Newsletter editor: Kathryn Ayscough
Publications editor: Louise Cramer
Design/layout: Giles Newton
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http://www.kcl.ac.uk/links/bscb.html

Cover picture: Rat embryo fibroblast spreading in the presence of the MAP kinase inhibitor UO126 stained for talin. Courtesy of Steve Winder.

Contents

NEWS

Changes on the BSCB Committee

We would like to announce that Fiona Watt (right) of the ICRF in London is to succeed Ron Laskey as the president of the BSCB following the AGM next year.

We also wish to extend our thanks to retiring committee members, Theo Bloom and Nick LaThangue, for all their hard work for the society and welcome Bill Earnshaw and Paul Luzio as new members.

Details of the current committee are listed at the back of the newsletter.

Calling All BSCB Members!

A message from membership secretary, Steve Winder

The BSCB is run on a voluntary basis, by cell biologists like yourself, for no other reward than the betterment of cell biology in Britain. In order to streamline the Society and reduce the workload of the Committee members involved, we ask you to please read the following and where necessary take action.

Direct debits

Currently only half the 2122 membership pays this way. It is a much simpler and more efficient way of collecting subscriptions for you and for us. **Take out a direct debit in favour of the Society now.** A direct debit mandate is on page 33.

If you currently have a standing order in favour of the Society please also contact your bank directly to cancel it. **CANCEL OLD STANDING ORDERS.** We cannot do that for you. If you currently pay by direct debit over 100 of you are also still paying by standing order! Check your bank statements for April or October and cancel them directly with your bank.

E-mail addresses

Only about 2/3 of our membership has notified us of email addresses. For ease and efficiency of mailings we would like to use email as a way of contacting the membership. **PLEASE UPDATE YOUR EMAIL ADDRESS NOW.** Don't worry if you don't have an email address, you will still be sent newsletters and other information by post.

Postal Addresses

Over 300 of you have not updated your address. Without a current address we can't send you the newsletter or inform you of other Society news. If you have recently moved and this newsletter has been forwarded to you, **inform us of your new address now.**

Please also look at the list of 'missing' members on pages 29–30. If you know where any of these people are, please let us know.

All direct debits, changes of email and postal addresses and all other membership enquiries should be sent to Margaret Clements, BSCB Assistant, Department of Zoology, Cambridge University, Downing St., Cambridge, CB2 3EJ

or email to:
zoo-jeb01@lists.cam.ac.uk

Winners of BSCB Young Cell Biologists of the Year Poster Prize

Congratulations to the winners of the BSCB Young Cell Biologist Poster Prizes. These were awarded at this year's BSCB/BSDB Spring meeting held in Manchester. The winner of the trip to the ASCB meeting in Washington D.C. was Fanni Gergely, a student in Jordan Raff's lab at the Wellcome/CRC Institute in Cambridge, for her poster 'dMA8, a centrosomal MAP required for spindle function in the early *Drosophila* embryo'. Runner-up prizes of a subscription to Trends in Cell Biology and £100 were awarded to Hille Tekotte (ICMB, Edinburgh) and Martha Betson (LMCB, London). We would also like to thank the judges Conly Rieder, Jake Kendrick-Jones, Vic Small and Manfred Schliwa who had a difficult time selecting the winners from the many excellent posters.

Omissions

In the last newsletter we published an obituary for Thomas Kreis. We omitted to print an attribution for the photo used in the article. The photo attribution should have read – Courtesy of Gabriele Seethaler.

Awards

BSCB Hooke Medal

The BSCB Hooke medal is to be awarded for achievement and excellence in Cell Biology. It is intended that the medal will be awarded to a scientist up to the age of 45 for research contributions to cell biology. The research should have been undertaken in the UK. Nominations for the medal should be sent by email to M.Whitaker of the BSCB committee (michael.whitaker@newcastle.ac.uk). The closing date for nominations is **31st July 1999**.

Eastern European Bursaries

Each year the BSCB offers bursaries for young scientists from central and eastern Europe to attend the annual BSCB/BSDB Spring meeting (details available on the BSCB webpage and in winter newsletters). This year three awards were made and below is a letter we have received from two of the students who are currently in the Czech Republic.

Dear Kathryn,

First of all, we would like to thank the BSCB Committee Members for providing us with a bursary to attend the BSCB/BSDB meeting. Recently, we have been working as PhD-students in the Laboratory of Cell Ultrastructure and Molecular Biology and our interest includes the relationships between nucleus ultrastructure and functions. The participation in the symposium was, therefore, a priceless experience for us.

We enjoyed all of the lectures we attended. Especially the lecture in the BSCB symposium by Carl Smythe "Early events in the assembly of a functional nucleus" we found very interesting and relevant to our additional work. Besides a lot of new information we also have learnt some practical methods which we would like to use in our laboratory in the future. Apart from that we could see a great deal of good examples how to present our own results.

In short, we feel that it was very useful for us to attend this symposium. It was not only a strong motivation but we are sure that some of the ideas we learnt will help us to proceed faster in our experiments and get the results worthy of presentation.

Yours sincerely,
Beata Fuchsova
Marketa Popelkova

Awards for travel to meetings

The BSCB Honor Fell Travel Awards are available for up to a limit of £250 to provide financial support for young BSCB members to attend scientific meetings and conferences. Applications are considered for any meeting relevant to cell biology though the applicant must be presenting a poster or a talk. For more details and an application form see page 31.

A Tribute to Richard MacKenzie Warn (1948–1998)

Richard Warn was tragically killed in a bicycle accident on December 1st 1999. This article is adapted from the tribute delivered by Professor George Duncan at a Memorial Service, held to give thanks for Richard's life, on 9th January 1999

Richard was born 51 years ago to Colonel David and Mrs Beryl Warn and grew up near Bournemouth. Following school he went on to be a very successful student at Oxford and gained a place to carry out a PhD in Developmental Biology with Sir John Gurdon. He also won a travelling Scholarship to visit Professor Rereburno to study sea squirt development in Palermo. There he gained a lasting respect and love for Italy and all things Italian. After his PhD he joined the zoology Department as a Demonstrator and it was during that time that he met his future wife Alba.

Not long after, they moved to Norwich to set up a very happy home together and Elizabeth and Veronica are a testament to their loving and supportive family life.

Richard also had a very happy and supportive laboratory life in the School of Biology where Richard quickly set up an excellent research base. One thing Richard took particular delight in was assembling his very beautiful immunofluorescence photographs for publication. Richard liked to get things just right - the best oil for his microscopy, the best incubating solutions for his cells and tissues and the best way to solve a biological problem.

Several years ago he recognised that the right molecule to answer some of the questions in cancer biology and indeed in other fields of research was Scatter Factor, a molecule which, as the name suggests, makes cells move rapidly in all directions when they are exposed to it. Richard's team are carrying on with this work, which involves collaboration with researchers in Japan and the USA, as well as with a number of groups at UEA.

Richard Warn (1948–98)

Richard threw himself wholeheartedly into any job he took on. It was actually a humbling experience to teach on the same course as Richard because at the end of the course the undergraduates are surveyed for their opinions and each lecturer on the course has access to all the comments. In Richard's section I saw year after year, comments like 'superb', 'so enthusiastic', 'why can't we have more from Dr Warn' – so confident and packed with goodies.

To go for a walk in the countryside with Richard was an education in itself. His eyes were alert, scanning the sky for birds and butterflies to identify, the plants and hedgerows for snails and spiders and the ground for pieces of Roman pottery. Truly like Jaques in 'As You Like It' he found sermons in stones, books in the running brooks and good in everything.

Richard's full name was Richard McKenzie Warn. He was very proud of his McKenzie connections and he had the clan shield and tartan facing you on the wall as you came in the door. The Latin motto if you looked closely said "Luceo non uro". Luceo – I shine, non uro – but I do not burn. This, I feel, describes Richard perfectly. No one ever felt the uncomfortable heat of his actions but instead he suffused all our lives with a most warm and happy glow.

Thank you Richard.

(Our thanks to Professor George Duncan for permitting use of this tribute by the BSCB.)

Signalling To Science Teachers

The BSCB supported lecture at the 1999 Annual Meeting of the Association for Science Education, University of Reading

The BSCB lecture was given by Professor Robin Irvine, FRS of the Department of Pharmacology, University of Cambridge on Friday 8 January at 1400hrs and bore the wonderful title: *Inositol (...no, but he sure knows a hell of a lot).* Unfortunately for a variety of reasons not as many people attended Robin's excellent talk as had attended previous BSCB lectures. Report forms received by the ASE indicated that the lecture was very well received with such comments as "Brilliant lecture. I would like to follow this up" and "Outstanding – fast, fun and informative. Biochemistry made real to a chemist".

Delegates arrived to a music background of Brahms 'Academic Festival Overture' and were given a lecture leaflet composed with clarity by Robin and published by Theo Bloom. This year Oxford University Press kindly provided a discount voucher for £2.50 against purchase of a CD-ROM 'The Cell – Unit of Life'.

A formal welcome was given by David Archer who explained the aim of the BSCB lectures. He then introduced Professor Irvine FRS. Robin did his doctorate on 'Ethylene as a plant hormone'. For his post doctoral work on inositides he worked with R. M. C. Dawson at the Babraham Institute. In the 1980s Robin was the fourth most cited author in the Science Citation Index and this was followed by election to The Royal Society. In 1996 he was appointed Royal Society Research Professor at Cambridge.

Robin opened his lecture, which was peppered with good humour, by relating how his carefully thought out title slide did not amuse his audiences in the USA because of pronunciation differences. We were then introduced to inositol as a very stable six carbon ring structure with a shelf-life of probably several hundred years. The compound was isolated and purified in 1887 from both beech leaves and horse urine. It is metabolically very stable and is used by plants as an intermediate metabolite.

Inositol has lots of hydroxyl molecules (see diagram in lecture leaflet) making it biochemically very flexible. Evolution has been attaching phosphate groups to the hydroxyls for a very long time. With the possibility of 6 reactive positions and 63 inositol phosphates, the compound is turning out to be a fundamental building block in biological chemistry with many of the functions being central to intracellular signalling.

Robin very usefully helped his audience understand the chemical structure and nomenclature of the inositol ring by using the turtle analogy (see lecture leaflet). The rest of the lecture was divided into two parts. The first part was devoted to inositol when it is incorporated into phospholipids as found in the membranes surrounding cells. In the second part we heard about inositol phosphates in the cytosol or in 'turtle analogy' terms when it is 'free swimming'.

We learnt that the divalent cation calcium is the single most important regulator of cell function and is used by cells as a second messenger to control cellular processes as diverse as cell death and proliferation, muscle contraction and secretion. This release of calcium begins with the action of phosphatidylinositol (PI) which is converted to various phosphatidylinositol phosphates (PIPs). The calcium is mainly released from the endoplasmic reticulum in the form of waves. I doubt whether any of the audience will forget how these waves rise and fall after the dramatic illustration by Robin using a burp, belch and simulated vomiting! Have you ever seen an audience enjoy simulated vomiting? They loved it just as they were surprised at hearing that about 5% of our energy is spent every day removing calcium from inside the cell to the outside. Calcium; essential but essentially toxic.

Robin then returned to inositides and their connection with the malfunctioning of chloride channels is cystic fibrosis, to a link with cancer through the connection of 3-phosphorylated inositol lipids to

cell proliferation and in arthritis through links to inflammatory responses.

It is perhaps not surprising that inositol is, to use Robin's words, "one of evolution's favourite molecules".

David thanked Robin for his dramatically illustrated lecture and invited questions. One concerned teaching style when Robin said that quite often he would teach 'the detail first' and then pan out how the plant or animal used it. He felt it was more exciting this way than to save the "who done it" bit to the end.

On the topic of ever expanding syllabus content Robin agreed that this was a problem at university as well as at 'A' level but he felt you could not keep new information a mystery. Robin suggested that perhaps the time is approaching as a result of the colossal growth in knowledge about cell biology that it will merit its own 'A' level examination. Techniques and procedures are not required but concepts as illustrated by the example of inositol and calcium in intracellular signalling are part of the 'new biology'.

School News

In order to bring about a reduction in the number of bodies providing examinations and awards for pupils age 16 and post 16, in England and Wales, as suggested in the Dearing Report (1996), some re-grouping has taken place. (Scotland and N.Ireland have their own boards, and Wales may have for some subjects).

From October 1998 only three boards will be able to make awards, so you can forget your UCLES and NEAB, SEGs and MEGs, at least in the not too distant future. The organisations are listed below in alphabetical order. It is expected that some courses and examination papers may bare previous 'brand names' for a time but the new organisations will be the official bodies.

AQA © Assessment and Qualifications Alliance
An alliance of AEB (Associated Examining Board), SEG (Southern Examinations Group, City and Guilds and NEAB (Northern Examinations and Assessment Board).

Edexel Foundation
This foundation incorporates the services previously provided by London Examinations (University of London) and BTEC (Business and Technology Education Council).

OCR © Oxford, Cambridge, Royal Society of Arts
This organisation combines examination services previously provided by UCLES - (University of Cambridge Local Examinations Syndicate), MEG - (Midland Examinations Group) and RSA (Royal Society of Arts).

Sir Ron Dearing also proposed that the number of syllabuses should be cut and examination boards have been told to cut two thirds of their 'A' level examinations.This could be bad news for cell biology because as Rosalyn Ashby of the Institute of Education, London, was recently quoted in 'The Times Educational Supplement' as saying "this is the end of curriculum development in examination syllabuses. It will wreck curriculum development because there will be no point in trying to get anything new off the ground." Robin Irvine's comment (see BSCB lecture report) that one day Cell Biology might be taken as a separate 'A' level is perhaps already clouding over.

David Archer
BSCB Schools Liaison Officer
194 Silverdale Road
Earley
Reading
RG6 7NB

A copy of the lecture leaflet written by Robin Irvine follows overleaf. It can be photocopied two-sided and folded down the middle; the BSCB is happy for copies to be distributed copyright-free within educational institutions.

Further reading

M.J. Berridge: ***Inositol trisphosphate and calcium signalling.*** *Nature* 361: 315–325; 1993.

M.J. Berridge, M.D. Bootman and P. Lipp: ***Calcium – a life and death signal.*** *Nature* 395: 645–648; 1998.

B. Vanhaesbrock, S.J. Leevers, G. Panayotou and M.D. Waterfield: ***Phosphoinositide 3-kinases: a conserved family of signal transducers.*** *Trends in Biochemical Sciences* 22: 267–272; 1997.

The best source of information on all inositol phosphates, which Steve Shears keeps continually updated, is to be found at:

http://dir.niehs.nih.gov/dirlst/shears.htm

(as with most USA websites, this is best accessed in the morning from the UK).

BRITISH SOCIETY FOR CELL BIOLOGY

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BRITISH SOCIETY FOR CELL BIOLOGY

Dispatches from the Frontiers of Cell Biology

Inositol

(...no, but he sure knows a hell of a lot)

by Robin Irvine FRS
Department of Pharmacology
University of Cambridge

Contents:

Keywords: Inositol, calcium, cell growth, secretion, intracellular signalling.

"One Ring to rule them all,
One Ring to find them."

J.R.R. Tolkein, *The Lord of the Rings*

Introduction

The Ring to which J.R.R. Tolkein might have been referring, had he known as much as we do now about cell signalling, is the inositol ring. Inositol, a sugar-like molecule, was discovered in the 19th century, and by the 1920s much of its chemistry was understood. During the 1940s and 50s the first hints emerged that inositol is a building block for a number of biological molecules, and that these may be actively involved in several cellular events and processes. But nothing could prepare us for the huge number of inositol-containing molecules, and the functions they have, which have become apparent in the 1980s and 90s; many of these functions are central to intracellular signalling.

Definitions

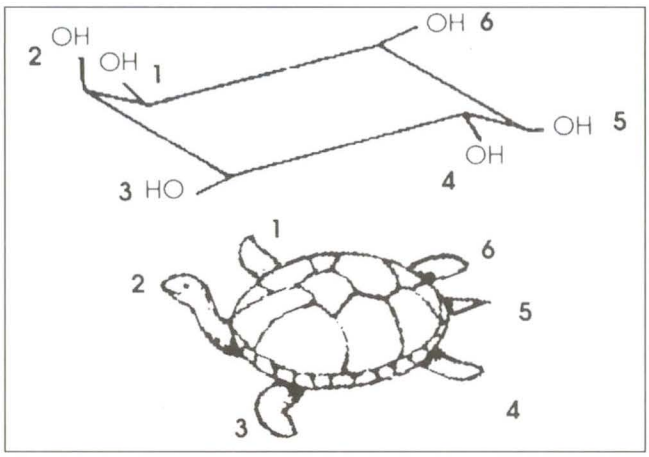
Intracellular signalling: The relay of signals from the cell surface through the cytoplasm to achieve effects in response to extracellular molecules.

Receptor: The molecule on a cell's surface that recognises a specific extracellular molecule and initiates an intracellular signal in response.

Inositide: A molecule containing an inositol ring as part of its structure. Inositide names include numerals to indicate the positions on the inositol ring that have particular chemical modifications.

Physiology

All the cells in our bodies are continually under the control of external influences communicated by molecules such as hormones, neurotransmitters and growth factors. But very few of these molecules actually enter cells – they get no further than the outer surface and then interact with a recognition molecule, a receptor, that is on the cell's outer surface. Once the receptor recognises that it has been hit by the correct hormone or other signal, it sends into the cell a variety of secondary chemical signals. It is the study of the nature of these signals, how they are made, and how the cell interprets them and then modifies its functions, that make up the field of intracellular signalling. Inositides are key components of many intracellular signalling cascades.



Functions

The inositides fall into two main groups. Inositol lipids are hydrophobic and form part of the structure of the membranes surrounding, or within, cells. The inositol phosphates, by contrast, are soluble in water and are found primarily in the cytoplasm. The huge variety of inositides arises because although inositol is chemically simple, each position on its ring is unique, and different chemical groups can be attached readily to each of these positions (see the diagram, which demonstrates how each position – the head, tail and each of the four flippers – is unique).

The functions of inositides are as varied as their structures. For example, Inositol 1,4,5-trisphosphate is a central player in the rapid responses of tissues to hormones, and its unique mode of action causes a frequency-modulated (FM) signal based on calcium ions; this FM signal, in turn, controls such processes as secretion in most endocrine and exocrine tissues.

Pathology

Inositol 3,4,5,6 tetrakisphosphate appears to be a crucial regulator of chloride channels in epithelia – analogues of these chloride channels fail to function correctly in cystic fibrosis. The 3-phosphorylated inositol lipids are central to cellular proliferation, and already therapeutic compounds are being targeted against them as possible anti-cancer strategies. The involvement of 3-phosphorylated inositol lipids in inflammatory responses is leading to new approaches to controlling some pathologies, for example, arthritis.

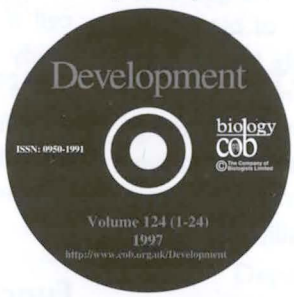
ARCHIVAL CDs

£10/$15 each*

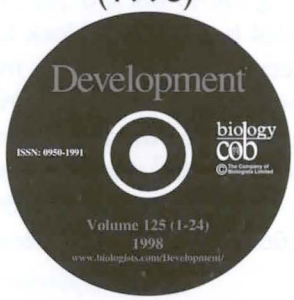
Development

Development is the leading journal in developmental biology. It focuses on major experimental studies of genetic, molecular and cellular aspects of animal and plant development, as well as publishing reviews by the world's leading authors in the field.

VOLUME 124
(1997)



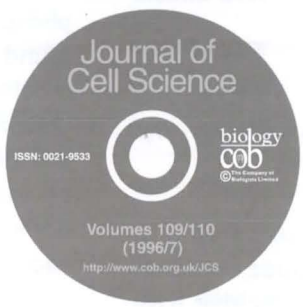
VOLUME 125
(1998)



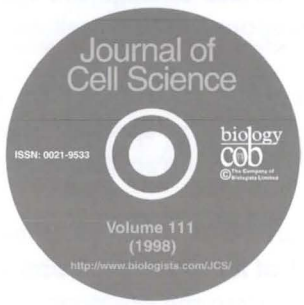
Journal of Cell Science

Journal of Cell Science covers the complete range of topics in contemporary cell biology, attracting top-quality papers. The journal is of key interest to cell biologists in all disciplines, molecular biologists, geneticists and particularly those working in the cell cycle and cell signalling fields.

VOLUMES 109-110
(1996-1997)



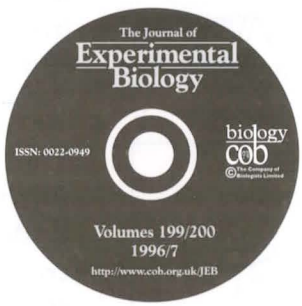
VOLUME 111
(1998)



The Journal of Experimental Biology

A leading journal in comparative animal physiology. It plays a major role in increasing cross-fertilisation of techniques and knowledge across specialisation boundaries, offering an approach to integrative biology at all levels, from the molecular and sub-cellular to the whole animal.

VOLUMES 199-200
(1996-1997)



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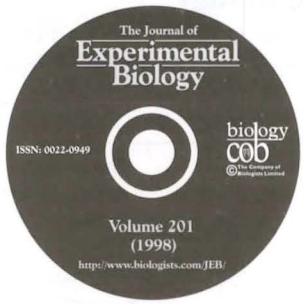

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BSCB Spring Meeting: A few highlights

Robert Insall and Hilary Dewar

The 1999 Spring meeting of the BSCB was held at Manchester University between the 13th and 16th of April. A total of 35 speakers focused on three aspects of cell machinery – Motors, Mitosis, and Cellular Organisation. Three additional workshops on related topics, as well as a particularly cell-centred BSDB meeting, ensured that participants were constantly torn between more than one interesting and relevant talk.

The large number of interesting talks makes it impossible to summarise the whole meeting. Also, the debauched nightlife (an excellent feature of BSCB meetings in general) caused your correspondents to miss several talks through nervous exhaustion. This report therefore inevitably discusses a somewhat random sample of what was a solid, wide-ranging and successful meeting, and we apologise to those whose talks are missed. Great credit is due to the scientific organisers, Viki Allan and Iain Hagan, for assembling the programme.

Motors and their Cargoes

The meeting opened with a great talk from **Richard Vallee** (University of Massachusetts), giving the keynote Yamanouchi Lecture 'Roles of Cytoplasmic Dynein in Cell Motility and Development'. Cytoplasmic dynein is a motor protein implicated in a broad range of functions during mitosis and in the positioning and distribution of cellular organelles. He described how the ability of dynein to interact with a diverse range of 'cargo' may lie in its accessory subunits, the intermediate, light intermediate and light chains, and its accessory complex, dynactin. He also introduced us to LIS-1, a human gene which is implicated in cytoplasmic dynein function. When mutated, LIS-1 causes lissencephalic brain disease, which is fatal within the first few months of life. LIS-1 interacts with cytoplasmic dynein and plays a role in a subset of dynein functions related to cell body migration.

Manfred Schliwa (Munich) continued with the theme of molecular motor proteins in 'Molecular Anatomy of the Kinesin Molecule'. His lab has generated a kinesin-deficient strain in the filamentous fungus Neurospora crassa to address the function(s) of this conventional kinesin at the cellular level. Using mutated and chimaeric kinesin constructs in both in vivo and in vitro assays he was able to analyse the structure-function relationships within the molecule and determine the important domains for cargo binding and regulation of activity.

Moving onto the cargoes moved by motors, the regulation of melanosome transport in the cytoplasm of cultured *Xenopus* melanophores was discussed by **Vladimir Gelfand** (Illinois). Kinesin-II and myosin-V are involved in melanosome dispersion. Microtubules are responsible for long distance movement while actin is required for homogenous distribution of pigment and cytoplasmic dynein is required for aggregation of pigment. In addition to regulation of transport during aggregation and dispersion, melanosome transport is also subjected to cell-cycle regulation. Melanosome movement on actin was inhibited when incubated in *Xenopus* metaphase egg extract, but was unaffected by interphase extract.

Also in this session, **Rainer Pepperkok** (Heidelberg) gave a talk on the direct visualisation of membrane traffic between the endoplasmic reticulum and the Golgi complex. He clearly demonstrated the movement of two cytosolic vesicular coat protein complexes, COPI and COPII, between the ER and Golgi complex, using several movies of GFP tagged secretory markers. His lab have found that COPII is involved in ER to Golgi directed traffic, whereas COPI appears to acts in the opposite, retrograde direction.

Claude Antony (Paris) discussed his lab's work and results, which are consistent with the hypothesis that

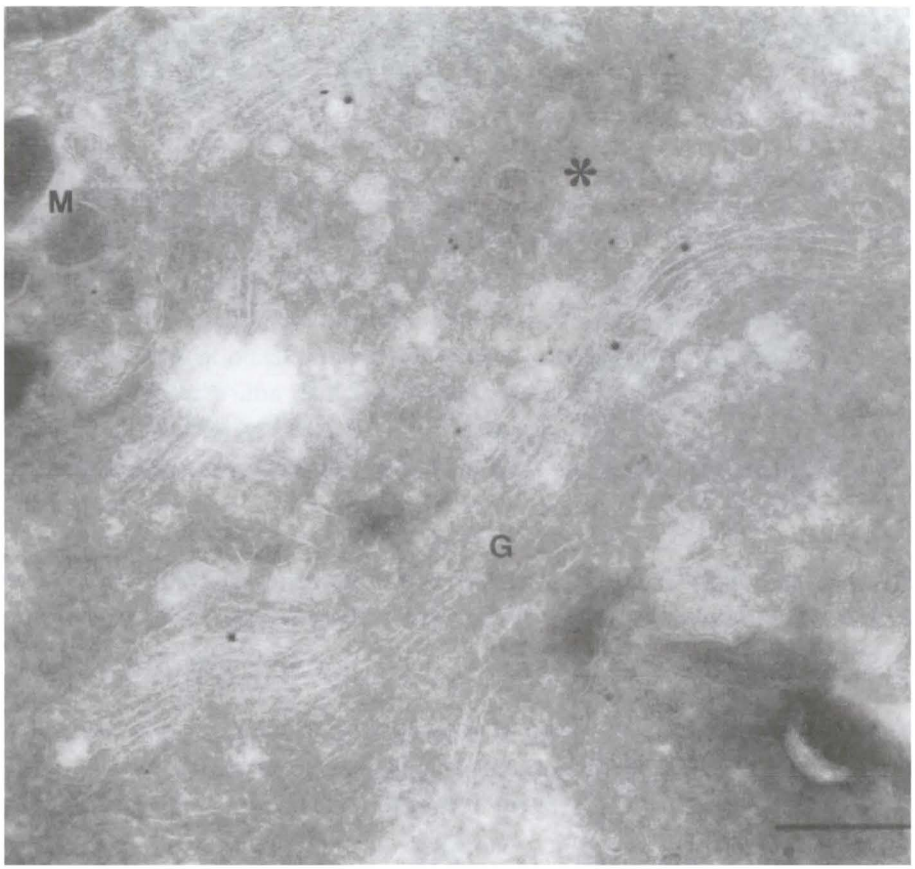

Figure 1. Electron micrograph showing cryosection of HeLa cell. Golgi apparatus (G), mitochondrion (M), TGN (*), large gold particles label Galactostyl transferase, a Golgi resident enzyme, small gold particles label TGN46. Bar = 0.2 μm. (Courtesy of Vas Ponnabalam).

the Shiga toxin B-fragment is transported directly from early/recycling endosomes to the Golgi apparatus. A consequence of his work is the possible development of an immunotherapy. His model demonstrated that the B fragment attached to antigen is taken up by cells and delivered to the ER, where the antigen is presented to MHCI before being returned to the plasma membrane.

Kurt Anderson (Oxted) then demonstrated (personally in most cases) close contact dynamics in crawling fish keratocytes in a series of movies generated by simultaneously imaging microinjected fluorescent vinculin and interference reflection in the confocal microscope. His work showed, for the first time, contact dynamics followed directly in living keratocytes. Kurt's results suggest that not all regions of close contact are actually structural contacts, and that force generation leads to contact sliding.

The afternoon session (sponsored by Unilever) began with two talks relating to myosin. **Justin Molloy** (York) discussed his work on actomyosin mechanical interactions – measured by an optical tweezer transducer – and the biochemical properties of myosins, using a combination of conventional methods and single molecule fluorescence imaging. **John Kendrick-Jones** (Cambridge) then discussed the role of the unconventional myosins in membrane trafficking, specifically myosins I, V and VI, since they are believed to be involved in membrane-cytoskeletal reorganisation and transport. He concentrated on myosin VI and showed us immuno-electron micrographs and GFP-tagged myosin VI, to show us its cellular localisation at the Golgi and at the leading, ruffling edge of mammalian cells. His lab have found that myosin VI is recruited into membrane ruffles upon EGF stimulation, and that it is phosphorylated by a rac/p21-activated kinase (PAK). This finding is significant as myosin VI localisation in two cellular compartments suggests a role in membrane trafficking, possibly mediated by one of these signal transduction pathways.

To end the session were two talks discussing mRNA localization. **Rob Singer** (New York) explained work which demonstrates a role for myosins and small GTPases in the polarised localization of beta-actin mRNA. He also made us aware of the evolutionary conservation of specific mRNA localization through his lab's work on Ash1p mRNA localization in budding yeast. This was followed by a talk from **John Carson** (Connecticut) who showed how his lab have

delineated a multistep RNA trafficking pathway for myelin basic protein mRNA in oligodendrocytes.

Mitosis, Lasers and Yeast

The morning of the second day, together with the whole of the third, combined a large range of approaches to mitosis. **Conly Rieder**, from the Wadsworth Center, New York, discussed a large-scale approach. His group have used microscopy (of remarkable technical quality) to follow mitosis in cells from several different furry creatures. They then use a powerful, focused flash of laser light to ablate one of the centrosomes of the spindle early in mitosis. The target was picked out by marking it using a GFP/γ-tubulin fusion, which also served to verify its complete obliteration. The (initially) surprising result is that loss of one centrosome barely seems to affect the later stages of mitosis; the cell divides indistinguishably from its counterparts with two centrosomes. However, when most cell types were cooled, to depolymerize the microtubule cytoskeleton, then re-warmed, they could only re-form a proper spindle in the presence of both centrosomes. Cells in which one centrosome had been ablated formed completely disoriented spindles, with the additional surprising observation that the surviving centrosome is somehow down-regulated. This leads to the conclusion that centrosomes are not providing a driving force during mitosis, just setting up the pattern – "when you kill the brain, the body can live on".

Andreas Merdes, recently arrived at the ICMB in Edinburgh, provided some mechanistic explanation. *Xenopus* extracts following high-speed centrifugation, which lack centrioles, are able to form mitotic spindles around DNA-coated beads *in vitro*. However, if either NuMA (a large centrosomal protein) or dynein are immunodepleted from the extract, woolly assemblages without poles are formed. The resulting model suggests that NuMA is carried away from chromosomes by a motor complex based on dynein, and can crosslink microtubules, and together these activities are sufficient to form the bones of a spindle. Unexpectedly, NuMA has not been found in invertebrates or lower eukaryotes, which suggests that other proteins can mediate the same function. Centrosomes presumably define where a spindle should form but are not required.

Earlier, **John Kilmartin** (Cambridge) had given a fascinating Borden plenary lecture, packed with information about his work on the yeast spindle pole body, the equivalent of the mammalian centrosome. Mitosis is very different in *Saccharomyces cerevisiae* – the nuclear membrane remains intact during chromosome separation, chromosomes do not visibly condense, and spindle poles contain no centrioles. However, spindle poles are otherwise similar to centrosomes, and duplicate during the cell cycle in a similar fashion. Kilmartin presented a mechanism for this duplication, based on ultrastructural observations, and the identification of a large number of spindle pole components using biochemical purification followed by MALDI mass spectroscopy. On a related subject, **Jeff Errington** (Oxford) caused a particular buzz, showing unexpected data which suggest that chromosome segregation in *Bacillus subtilis* uses structures with some similarity to spindle poles or centromeres.

After Mitosis - Division of the Spoils

Cytokinesis, the division of cellular components after mitosis, is becoming a most exciting field, and several speakers in the mitosis session reported interesting results. **Bill Earnshaw** (Edinburgh) started by talking about the role of centromere proteins (CENPs) in mitosis. One unfolding topic was the post-translational modification of CENPs by Sumo-1, a ubiquitin homologue which appears specific for nuclear proteins. Expression of the Herpes VM110 protein, which causes degradation of Sumo-1-modified proteins, disrupts kinetochores by diminishing CENP-C levels. The connection with cytokinesis comes through another CENP, INCENP (inner centromere protein). As mitosis begins, INCENP binds homogenously to all the chromosomes, but during metaphase it localises to the centromeres, is left behind as the chromosomes separate, and relocates in anaphase to the future site of the cleavage furrow. Several lines of evidence suggest a key role for

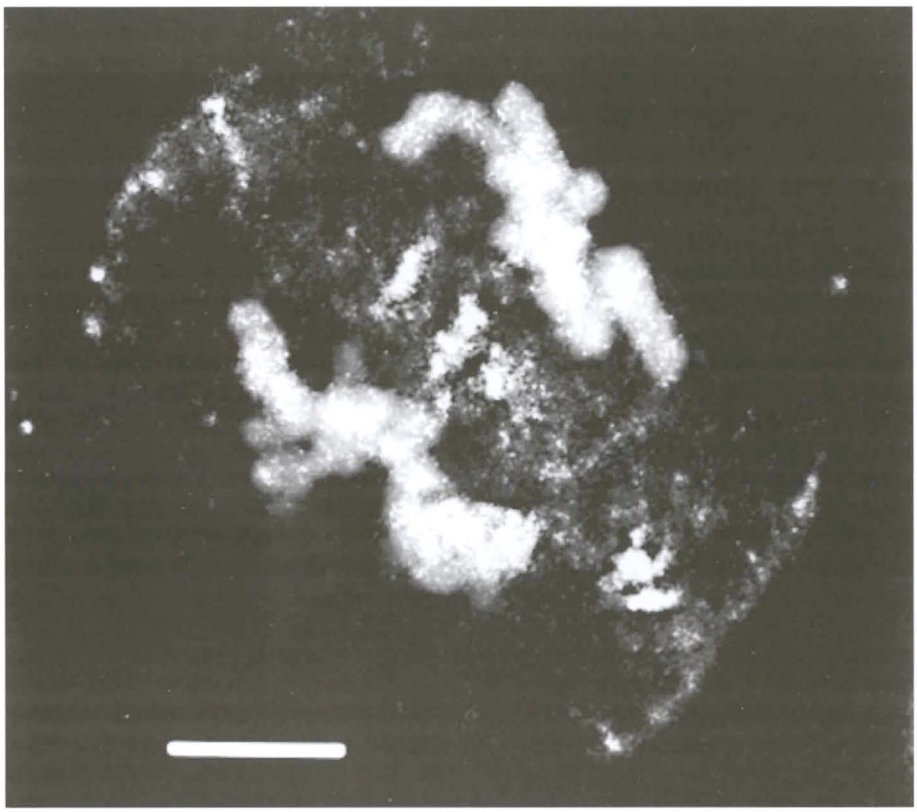

Figure 2. Chromosomes stained with propidium iodide and INCENP stained with a monoclonal antibody. INCENP is on the central spindle and also on the cell cortex above where the cleavage furrow will form. Bar = 5 microns. (Courtesy of Bill Earnshaw.)

INCENP in the formation of the furrow, the most obvious being that INCENP marks the furrow earlier than any other markers such as myosin II.

The genetics of cytokinesis were also covered by several speakers. **Viesturs Simanis** (Switzerland) discussed the role of the Schizosaccharomyces Spg1p, an unusual GTPase which does not possess a membrane-targetting -CAAX box, and is therefore not membrane-associated. Spg1p (septation promoting kinase) appears to control the activity of the kinase Cdc7p - mutants in either spg1 or cdc7 make elongate, unseptated multinucleate cells. Spg1p is inactivated by a GAP, Cdc16p, and seems to regulate a pathway leading through Cdc7p to the large group of genes which actually create the septum. One fascinating aspect of this work was the role of Spg1p in generating asymmetric cell division. Antibodies to Spg1p mark both spindle poles, whereas anti-Cdc7p picks up only one. A different, fortuitously selected, antibody which is specific for the GTP-bound form of Spg1p marks only the Cdc7p-positive pole, which demonstrates that some kind of asymmetric marker acts through Spg1p to differentiate the ends of the spindle, presumably identifying the mother and daughter halves.

One curious feature of the mitosis and cytokinesis talks was the relative lack of cross-fertilisation between workers on different organisms. The rapid transfer of knowledge and concepts from yeasts to mammalian systems and back, which characterised the early days of cell cycle biology, does not yet seem to have happened fully. The findings of yeast workers centred on septation - and while septins are known to exist in higher eukaryotes, their roles were not discussed. Conversely, proteins such as CENPs and NuMA were not covered in genetics talks and many may not exist in genetically tractable organisms. It seems that both higher and lower eukaryotes use radically different proteins to achieve similar aims, or that a new paradigm is waiting just around the corner for a future BSCB meeting

Structure and Polarity of Cells

The findings of **Paul Nurse** (ICRF, London) followed a similar pattern. In a typically witty and accessible talk, enlivened by a brief plaint about how hard it is for mutants to meet the partner of their dreams, Nurse discussed the roles of the *Schizosaccharomyces* cell polarity mutants tea1 and tea2 (tip elongation aberrant) and two1 (tea when overexpressed). Together, the products of these genes form a system for exploring the shape of the cell using the microtubule system, locating the ends, and directing new growth there. Tea1p is located at the ends of

growing cells, but this localisation is diminished if tea2 is mutated or if cells are treated with thiabendazole. Tea1p contains a Kelch repeat, presumably for binding to F-actin, and a coiled coil. Tea2p is kinesin-like, and Two1p resembles CLIP170, which suggests a model whereby Tea2p and Two1p continually carry Tea1p away from the nucleus on microtubules, causing its eventual accumulation in the ends. Tea1p is not yet known in other cells, though kelch repeats are found in actin-binding proteins in all eukaryotes, so again it will be interesting to see whether this mechanism is pombe-specific or general.

Clare Waterman-Storer (Chapel Hill) described work which definitely suggests connections between microtubules, actin polymerisation, and cell polarity. In an avowedly microtubule-centric talk, she described the response of cultured fibroblasts to microtubule-depolymerising reagents such as nocodazole. On nocodazole addition, cells have long been known to depolarise and cease ruffling. Waterman-Storer's idea was to follow the effects of nocodazole removal by time-lapse microscopy. She found that as soon as new microtubules reached the cell cortex, a burst of ruffling and (apparently) actin polymerisation occurs. When nocodazole is replaced with taxol, the microtubule stabiliser, the ruffling still occurs but is very brief, showing that ruffling is stimulated by microtubule growth, not the amount of polymerised tubulin. Nocodazole washout also causes a significant activation of Rac, leading to the idea that some GEF for Rac is activated by the arrival of new microtubule ends.

A contrasting, actin-centric view was provided by **Mike Way** (Heidelberg) and **Jürgen Wehland** (Braunschweig), both of whom described the hijacking of the cytoskeleton by intracellular parasites. Way, following a great deal of hard work (Vaccinia, unlike Listeria and Shigella, does not lend itself easily to genetic studies), has identified the protein which enables Vaccinia virus to move by polymerising the host cells' actin. The culprit is the viral protein A36R, which seems to protrude its C-terminus into the host cytoplasm and nucleate 'comet tails' of F-actin. Tyrosine phosphorylation, perhaps on A36R, is also a key feature - small patches of phosphotyrosine are visible at the interface between virus and actin tail, and inhibitors of Src-like tyrosine kinases block viral motility.

Listeria uses a different system, which does not require tyrosine phosphorylation, but Wehland showed that it did separately require the host factors VASP and the Arp2/3 complex. These are recruited and brought together by the Listeria ActA protein, which alone seems to be sufficient to control actin polymerisation using the host's machinery. Again, one key question for the future will be whether normal cellular actin polymerisation involves proteins such as A36R and ActA. One possible example, discussed by **Kathryn Ayscough** (Dundee), is *Saccharomyces* Sla1p. A better knowledge of such proteins could discount the alternative possibility, that Vaccinia and Listeria motility represent unusual and specific mechanisms which have little in common with normal actin behaviour.

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ASCB Meeting, San Francisco, December 1998

Rita Abranches

It is more than a year ago now, but I still remember the BSCB Lancaster Meeting as if it was yesterday. I had no idea there was a Poster Prize and certainly I wasn't expecting to come back home with a ticket to San Francisco in my hands. I couldn't have had a better surprise. Eight months later I went on my own to discover the Bay City and the biggest scientific meeting that I have ever attended.

My first impression when I stepped into the Moscone Convention Center was that although there were more than 6000 people all there for the same purpose, it was so easy to feel completely lost and lonely.

So I started by attending the session where I expected to meet all the faces I already knew from previous meetings, and I went "in search of nuclear structure". This was the title of the special interest subgroup meeting organised by Thoru Pederson, where an overview of chromosome dynamics was brilliantly presented by experts in the field. This was the first of a series of absorbing talks that I followed during the five days of the meeting. However I had to wait until the last day to present my poster in the session "Chromatin and Chromosomes", and there I had more opportunities to discuss ideas about my work and future prospects. I was not only looking forward to gaining some more scientific knowledge, but also to talk to various people with different backgrounds and experience. I wanted to get as much information as I could to help me to decide on which field to focus after my Ph.D. Also in the last day I greatly enjoyed the session on "Chromosomal basis of gene control" chaired by Alan Wolffe, where subjects such as epigenetics and imprinting were discussed.

From the talks that I attended I have the feeling that in a few years all of the research on the cell nucleus will be done on living cells. The words "dynamics", "living" and "movement" were present in almost all the titles of the communications, and certainly those were the ones that impressed me the most. I learned about several new experimental approaches to monitor movement of both chromosomes and nuclear structure components. I am looking forward to seeing how all these novel techniques will help us to unravel structure-function relationships in the nucleus.

I had a great time in San Francisco, and I would like to thank to all who contributed to that. Firstly to the BSCB for giving me this great opportunity, my supervisor Peter Shaw for all his support and the Gulbenkian Foundation/Praxis XXI Portugal for funding my research. A special thanks to Paul Hunter and his colleagues from the ASCB, as they were so friendly to me. Also a big thank you to my friends Ana and Rui for helping me to explore this amazing city. San Francisco became absolutely my favourite city in America and a serious candidate for my next residence as a post doc. Finally I am grateful to the Yerba Buena Gardens for being just across the street from the Moscone Center, where I could sit and enjoy the sunshine in December.

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Norwich

BSCB Autumn Meeting: The Endoplasmic Reticulum

Churchill Hall, University of Bristol, 21–24 September

General Information

Dates

Arrive Tuesday 21 September in time for dinner (dinner at 19:30); depart Friday 24 September after lunch (lunch at 13:00).

Travel

Bristol is most easily reached by train from London, Reading (RailAir Link) or Birmingham. The best way to reach Churchill Hall from either Bristol Temple Meads or Bristol Parkway stations is to use a taxi. The fare will be approximately £7 from either station. Parking is available at Churchill Hall.

Abstracts

There will be two Poster sessions. Abstracts may be selected for oral presentation. Please indicate which session you wish to be considered for, or whether you do not want to give a talk.
The deadline for abstracts is **10 July 1999**.

Registration

The maximum number of registrations will be 120. In the event that the meeting is over-subscribed, priority will be given to those who present posters. Registration forms and abstracts should be sent simultaneously and the deadline is 10 July 1999.

Fees

This conference is operated on a fixed-fee basis, to encourage everybody to stay for its duration. The fees, which must be paid at the time of registration, are as follows:

Resident BSCB member £300
Resident non-member £340

Honor Fell Travel Awards

PhD students and postdocs should remember that Honor Fell awards are available to cover conference costs in part. An Honor Fell application form should be submitted independently of registration to the BSCB (see page 31). Alternatively you can find an application form on:
http://www.kcl.ac.uk/kis/schools/life_sciences/biomed/bscb/honorfell.html

Symposia and workshops

To view the latest programme plans, check out the BSCB web site:
http://www.kcl.ac.uk/kis/schools/life_sciences/biomed/bscb/bscbmeeting.html

Sessions

ER structure, remodelling and dynamics
Allan, Viki (University of Manchester, U.K)
Cell cycle regulation of ER movement

Terasaki, Mark (University of Connecticut, USA)
ER morphology during the cell cycle and Ca^{2+} release

Glick, Ben.S (University of Chicago, USA)
Transitional ER and golgi dynamics.

Van Meer, Gerrit (University of Amsterdam, Netherlands) *Lipids of the ER/Golgi*

Pepperkok, Rainer (EMBL, Germany)
Visualisation of ER-Golgi traffic in living cells

ER and calcium
Taylor, Colin (University of Cambridge, UK)
Luminal calcium and the $InsP_3$ receptor channel"

Llewellyn, David (University of Cardiff, UK)
ER stress signalling

Bootman, Martin.D (University of Cambridge, UK)
Ca^{2+} release from internal stores

Brownlee, Colin (MBA Plymouth, UK)
ER and Ca^{2+} signalling in plant cells

Miyawaki, Atsushi (University of California San Diego, USA) *Cameleons*

Protein synthesis and chaperones
Session I
Michalak, Marek (University of Alberta, Canada)
Calreticulin

Denecke, Jurgen (University of Leeds, UK)
Calreticulin and BiP in plant cells

High, Steve (University of Manchester, UK)
Calnexin and calreticulin as molecular chaperones

Kaufman, Randall J (University of Michigan, USA)
Ca^{2+}, protein synthesis and BiP lumenal stress protein

Session II
Molinari, Maurizio (Swiss Federal Institute of Technology, Switzerland) *ER chaperones*

Simon, Sandford.M (Rockefeller university, USA)
Protein translocation in the ER

Kaminer, Benjamin (Boston University, USA)
ER calcistorin/PDI

ER receptors/channels:
Camacho, Patricia (University of Texas, USA)
SERCA and $InsP_3R$ regulation by calreticulin

Sorrentino, Vicki (San Raffaele Science Institute, Italy)
Ryanodine receptors

Szewczyk, Adam (M Nencki Institute of Experimental Biology, Poland)
K^+/Cl^- channels on intracellular membranes

East, J.Malcolm (University of Southampton, UK)
Effect of phospholipid structure on ER Ca^{2+} pump

The Endoplasmic Reticulum '99

Registration

The maximum number of registrations will be 120. In the event that the meeting is over-subscribed, priority will be given to those who present posters.

Registration forms and abstracts should be sent simultaneously; the deadline is **10 July 1999.**

Registration, which is being handled by The Biochemical Society will not be processed without receipt of a cheque or money order in Pounds Sterling, made payable to '**The Biochemical Society**', or appropriate credit card details.

Registration checklist:

- registration must be made in writing; fax copies will not be accepted.
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- either enclose a Sterling cheque for the relevant amount, payable to 'The Biochemical Society', or enclose credit card details.

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The Meetings Office, The Biochemical Society, 59 Portland Place, London W1N 3AJ. (Tel: +44 171 580 3481)

THE ENDOPLASMIC RETICULUM '99

Abstract Form

Please type within the grey frame. Abstracts will be published as typed.

Use all capital letters for the abstract title, in sans serif typeface.

Type authors names on line following title.

Leave one line between address and beginning of abstract text

Name .....

Address .....
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Category for abstract (check ONE only)

ER structure, remodelling and dynamics ❑
ER and calcium ❑
Protein synthesis and chaperones
Session I ❑
Session II ❑
ER receptors/channels ❑

I do not want to give a talk ❑

BRITISH SOCIETY FOR DEVELOPMENTAL BIOLOGY

Autumn Meeting 1999

CRANIOFACIAL DEVELOPMENT

15–17 September – Institute of Child Health London
A meeting in memory of Peter Thorogood

The autumn meeting of the BSDB will be held at the Institute of Child Health in London and focuses on recent advances in our understanding of craniofacial development. The programme will include talks on the subjects of:

Neural Crest
Facial Patterning
Teeth and the Oral Cavity
Brain Patterning
Genetics of Cranoifacial Development
Craniofacial Evolution.

Speakers include:

Jill Helms (San Francisco)
Max Muenke (Bethesda)
Jeff Murray (Iowa)
Michael Depew (San Francisco)
Robb Krumlauf (London)
David Wilkinson (London)
Ivor Mason (London)
Marysia Placzek (Sheffield)
Anthony Graham (London)
Paul Sharpe (London)
Gillian Morriss-Kay (Oxford)
Tom Schilling (London/Irvine)
Philippa Francis-West (London)
Peter Scambler (London)
Mike Dixon (Manchester)
Frits Meijlink (Holland)
Peter Holland (Reading)
Jim Hankin (Boulder)
Shigeru Kuratani (Okayama)
Moya Smith (London).

The meeting will run for 2 days from mid-day on 15 September to mid-day on 17th September. Registration and abstract submission deadline: **5th July 1999.**

For further information and registration forms, contact: The Courses and Conference Office, Insitute of Child Health, 30 Guilford Street, London, WC1N 1EH. Tel: 0171 829 8692; 0171 813 8394; Fax: 0171 831 6902; email: Courses@ich.ucl.ac.uk

THE AMERICAN SOCIETY
FOR CELL BIOLOGY

THIRTY-NINTH ANNUAL MEETING

December 11-15, 1999, Washington Convention Center, Washington, D.C.

Randy Schekman, *President;* David Drubin, *Program Chair;* Trina Schroer, *Local Arrangements Chair*

Symposia

The Impact of Genome-Wide Studies on Cell and Developmental Biology
David Botstein*, Cornelia Bargmann, Gerald Rubin

Stem Cells and Tissue Morphogenesis
David Anderson*, M. K. Barton, Janet Rossant

Asymmetric Cellular Organization
W. James Nelson*, John Pringle, Ralph Quatrano

Dynamics of the Nucleus
Angus Lamond*, Iain Mattaj, Erin O'Shea

Signaling and the Actin Cytoskeleton in Cell Motility and Adhesion
Thomas Pollard*, Gary Borisy, Anne Ridley

Sorting out Vesicle Trafficking
Scott Emr*, Margaret Scott Robinson, William Wickner

Visualizing Function: A Revolution in Electron Microscopy
Eva Nogales*, Joachim Frank, Nigel Unwin

Cellular Degeneration and Disease
Leonard Guarente*, Nancy Bonini, Dennis Selkoe

Cell Biology of Cancer
Thea Tlsty*, Bert Vogelstein, George Yancopoulos

(* Denotes Chairperson.)

Minisymposia

Biogenesis, Positioning and Remodeling of Subcellular Organelles
Jodi Nunnari, Katherine Osteryoung

The Cell Biology of Infectious Diseases
Chris Lamb, David Schneider

Crosstalk Between Integrins and Other Receptors
Joan Brugge, Rudy Juliano

Cytoskeletal Motor Proteins
Sharyn Endow, Tama Hasson

Cytoskeleton Assembly and Dynamics
Claire Walczak, Matthew Welch

The Cytoskeleton in Polarity and Development
Raffi Aroian, Sylvia Sanders

Cytoskeleton Regulation by Signaling Cascades
John Hartwig, Sachiko Tsukita

Development of Organismal Polarity
Bruce Bowerman, Lee Niswander

Drug Targets and Chemical Approaches to Biological Mechanisms
Timothy Mitchison, Kevan Shokat

Endocytosis
Pietro DeCamilli, Helmut Kramer

Extracellular Matrix Assembly and Function
Merton Bernfield, Jean Schwarzbauer

Formation and Fusion of Vesicles
Jenny Hinshaw, Reinhard Jahn

Localization, Stability and Transport of mRNA
Paul Macdonald, Robert Singer

Mechanisms of Cell Duplication and Division
Stephen Bell, Arturo DeLozanne

Perpetuation of the Species: Gametogenesis and Fertilization
Ira Herskowitz, Margaret Fuller

Protein Translocation Across Membranes
Susan Michaelis, Tom Rapoport

Protein Turnover and Autophagy
Raymond Deshaies, Daniel Klionsky

Nuclear Structure and Nucleo-cytoplasmic Transport
Katherine Lee Wilson, Michael Rexach

Programmed Cell Death
Jeff Dangl, Eileen White

Regulated Secretion
Chris Kaiser, Tom Sudhof

Regulation, Structure and Function of Cell Junctions
Kathy Green, Margaret Wheelock

Signal Transduction Pathways from the Cell Surface to the Nucleus
Deborah Morrison, Jeremy Thorner

Spindles and Spindle Poles
Rebecca Heald, Yixian Zheng

Stopping and Starting the Cell Cycle
William Dunphy, Daniel Lew

For more information, contact us at www.ascb.org/ascb, 301-530-7153 or ascbinfo@ascb.org

Forthcoming meetings

BSCB SPRING 2000 MEETING
The Cell Biology of Disease
Organizers: Stuart Kellie, Clare Isacke
28–31 March 2000, Warwick

Topics will include:
Cancer progression; Wound healing; Neuroscience; Cytokines and inflammation; Inherited diseases; Cytoskeletal diseases.

BSCB AUTUMN 2000 MEETING
The Cell Biology of Apoptosis
Organizers: Paul Clarke, Bill Earnshaw, Michael Hengartner, Anthony Metcalfe, Ted Hupp
10–13 September 2000, Edinburgh.

INTERNATIONAL CONGRESS ON DIFFERENTIATION AND CELL BIOLOGY 2000
Cell and Developmental Biology: the next Millenium
24–28 September, 2000

Australia will host the 7th International Congress for Cell Biology. It will be held in conjunction with the 11th Meeting of the International Society of Differentiation, and the 19th Conference of the Australia and New Zealand Society for Cell and Developmental Biology. The committee is planning an exciting program of basic, applied and clinical biological research, showcasing cutting edge science and highlighting the interface between cell biology and differentiation.

Convenor: Dr Peter French, Centre for Immunology, St Vincent's Hospital, Sydney. Inquiries: p.french@cfi.unsw.edu.au. Further updates: www.celldiff.unsw.edu.au

50TH HARDEN CONFERENCE: ANNEXINS
1–5 September 1999, Wye College, Kent, UK
Conference Organiser: S. Moss (London)
Organising Committee: A. Brisson (Groningen), R. Donato (Perugia), V. Gerke (Muenster), A. Lewit-Bentley (Paris), F. Russo-Marie (Paris)

Harden Lecture: H. Haigler (California, USA), *Annexin XII flips out on acid and inserts into membranes*
Keynote Lectures:
C. Creutz (Charlottesville, USA), *Calcium-dependent, membrane-binding proteins: Annexins, copines, and tricalbins*
R. Huber (Martinsreid, Germany), *Versatility and conservation in the annexin family of proteins*
J. Dedman (Cincinnati, USA), Annexins: *The Search for Function*
(Titles of lectures are subject to change before the Conference.)

Speakers include:
M.-F. Bader (France), A. Brisson (Netherlands), R. Donato (Italy), J. Ernst (USA), M. Fernandez (Spain), R. Flower (UK), V. Gerke (Germany), J. Gruenberg (Switzerland), K. Hajjar (USA), S. Jöckle (Germany), A. Lewit-Bentley (France), S. Moss (UK), G. Nelsestuen (USA), A. Noegel (Germany), H. Pollard (USA), C. Reutelingsperger (Netherlands), F. Russo-Marie (France), B. Seaton (USA), K. Simons (Germany), J. Tait (USA), D. Waisman (Canada), J. Walker (UK), R. Wuthier (USA)

The full programme and registration form is available at:
http://www.biochemsoc.org.uk/meetings/harden/default.htm

Deadline for application: **2 July 1999.**
The meeting is limited to 150 participants (including speakers).

Registration fee: £300.00 (ensuite), £280.50 (standard). This fee covers registration, accommodation and meals. There will be a limited number of bursaries for younger members of the Biochemical Society and other sponsoring societies.

The Harden Conferences are residential research conferences held annually under the auspices of the Biochemical Society. Each conference covers a specialist topic and is aimed at the forefront of biological research.
For further information contact: The Meetings Office, Biochemical Society, 59 Portland Place, London W1N 3AJ
Tel: 0171 580 3481 Fax: 0171 637 7626
E-mail: meetings@biochemsoc.org.uk

BIOCHEMICAL SOCIETY MEETING
University of Keele, 20–22 July 1999

Organisers:
S. Hazelwood (Keele); C. Kielty (Manchester); D. Tuckwell (Manchester); S. Bidey (Manchester); P. Lowenstein (Manchester); C. Tate (Cambridge); R. Grisshammer (Cambridge)

The Morton Medal Lecture:
Professor Anthony Watts (Oxford)
The need for expression expertise in solid state NMR studies of membrane proteins – successes and wish lists.

Colloquia:
Molecular Control of Apoptosis
Gene Therapy: From Bench to Bedside
Expression and Purification of Membrane Proteins
Structure and function of A-domains

Information:
The full programme and registration form is available at: www.biochemsoc.org.uk/meetings/keele99/default.htm

Deadline for abstracts: 7 May 1999
Deadline for application: 21 June 1999
Registration fee: Members £25.00
Non-members £100.00 per day

Contact details:
For further information contact: The Meetings Office, Biochemical Society, 59 Portland Place, London W1N 3AJ, Tel: 0171 580 3481 Fax: 0171 637 7626
e-mail: meetings@biochemsoc.org.uk

Speakers include:
P. Aebischer (Lausanne); I. Anegon (Nantes France); H. Blasey (Serono); H. Brady (London); S. Buchanan (London); M. Castro (Manchester); Y. Chernajovsky (London); P. Clarke (Dundee); W. DeGrip (Nijmegen); C. Dive (Manchester); J. Emsley (Leicester); S. Farrow (Glaxo); R. Flachmann (Heidelberg); R. Grisshammer (Cambridge); J. Groves (Bristol); A. Haines (Cobra Therapeutics); J. Ham (London); R. Hawkins (Manchester); V. Hedge (Keele); C. Higgins (London);

GENES AND CANCER 99

(UK Molecular Biology and Cancer Network meeting XVI)

13-15th DECEMBER 1999, UNIVERSITY OF WARWICK, UK

KEYNOTE LECTURE

HARLOW (Boston)

GENE EXPRESSION

BERK (Los Angeles) * TORA (Strasbourg) * SCHWABE (Cambridge)
TREISMAN (London) * HILL (London) * WAGNER (Vienna)

CHECKPOINTS AND DNA DAMAGE

Speakers include:
WEST (South Mimms) * ROTTMAN (Jerusalem)
MITTNACHT (London) * PINES (Cambridge)

TUMOUR SUPPRESSOR GENES

LANE (Dundee) * KAELIN (Boston)
CLEVERS (Utrecht) * HASTIE (Edinburgh)

BEYOND THE GENOME

Speakers include:
LEGRAIN (Paris) * MANN (Aarhus)

POSTERS & TRADE EXHIBITION

Registration £60 (students £30) Accommodation and meals £160 / £200

APPLICATION FORMS AND FULL DETAILS FROM:

Dr Helen Hurst: FAX 0181-383-3258, E-mail h.hurst@icrf.icnet.uk
www.icr.ac.uk/ukmbcn/info.htm

Deadline for poster abstracts: October 22nd 1999 Registration deadline: November 3rd 1999

S. High (Manchester); N. Hogg (London); M. Hollingdale (Leeds); H. Kiefer (Stuttgart); D. Klatzmann (Paris); S. Kochanek (Cologne); D. Latchman (London); A. Lever (Cambridge); P. Lowenstein (Manchester); R. Mayne (Alabama); N. Millar (London); B. Miroux (CNRS Meudon-bellevue France); M. Needham (Zeneca); G. Packham (London); M. Paulsson (Cologne); S. Perkins (London); B. Poolman (Groningen); R. Possee (Oxford); P. Reeves (Cambridge USA); K. Samejima (Edinburgh); S. Samulski (N. Carolina); L. Seymour (Birmingham); A. Shuttleworth (Manchester); G. Smith (Oxford); J. Stolz (Erlangen); C. Tate (Cambridge); J. Trowesdale (Cambridge); D. Tuckwell (Manchester); J. Uney (Bristol); A. Ward (Leeds); Professor Anthony Watts (Oxford); M. Whyte (Sheffield); L. Young (Birmingham).

BIOCHEMICAL SOCIETY MEETINGS

University of Cork, 7–9 September 1999

Medal/Plenary Lectures:

EMBO: Tuesday 7th September – J. Walker (MRC Cambridge)
Colworth Medal Lecture: Wednesday 8th September – N. Scrutton (Leicester)

Scientific Programme

Neuronal signal transduction and Alzheimer's Disease
Chemoprotection
Growth factors and cytokines at the maternal/foetal interface
Promotion of Biochemistry in the public domain
Cell survival and apoptosis
Biosensors and novel bioanalytical methods
Evolution of sequences, structures and genomes
Organisms, Organs, Cells and Organelles: in vivo and in vitro experimental systems
Ageing and the immune system

Information:

The full programme and registration form is available at:
www.biochemsoc.org.uk/meetings/cork99/default.htm

Deadline for poster abstracts: 18 June 1999
Deadline for application: 6 August 1999
Registration fee: Members £25.00 Non-member registration: £100.00 per day

For further information contact: The Meetings Office, Biochemical Society, 59 Portland Place, London W1N 3AJ, Tel: 0171 580 3481 Fax: 0171 637 7626
e-mail: meetings@biochemsoc.org.uk

NOVARTIS FOUNDATION OPEN MEETINGS 1999/2000

From genome to therapy: integrating new technologies with drug development
25th June 1999, Basel, Switzerland.
Information and registration details are available from Allyson Brown, Novartis Foundation, 41 Portland Place, London W1N 4BN. Tel 0171 636 9456, Fax 0171 436 2840, Email: ABrown@Novartisfound.org.uk

For all Novartis meeting listed below, further information and registration details are available from the Open Meeting Organizer: Janet Doyle, Novartis Foundation, 41 Portland Place, London W1N 4BN. Tel 0171 636 9456, Fax 0171 436 2840, Email JDoyle@Novartisfound.org.ukmeetings

Neuronal and cognitive effects of oestrogens
10th September 1999, Wellcome Trust Auditorium, London.
Neural transplanation in neurodegenerative disease
15th October 1999
Wellcome Trust Auditorium, London

The molecular basis of skeletogenesis
12th November 1999, Wellcome Trust Auditorium, London

The nature of intelligence
3rd December 1999, Institute of Psychiatry, London

Chronic obstructive pulmonary disease
28th January 2000, Wellcome Trust Auditorium, London)

Ageing vulnerability
3rd March 2000 (Wellcome Trust Auditorium, London)

Cell cycle and development
14th April 2000, Wellcome Trust Auditorium, London

Viruses causing diarrhoea
19th May 2000, Wellcome Trust Auditorium, London).

Novartis Foundation Bursary scheme
Aims to enable young scientists to attend Novartis Foundation symposia and, immediately following the meeting, spend up to 12 weeks in the department of one of the symposium participants.

Award: a) travel expenses to symposium and host laboratory; b)board and lodging for the duration of the bursary

Qualifications: Applicants (of any nationality) must be aged between 23–35 years on the closing date for application. It is essential that they be actively engaged in research on the topic covered by the symposium. They should not already have accepted an invitation to participate in that symposium.

Applications are now invited for the symposium: ***The molecular basis of skeletogenesis.*** Includes early patterning steps, evolutionary aspects, *Hox* genes, control of osteoblast proliferation and differentiation, limb abnormalities, long bone growth and achondroplasia, joint formation, regulation of osteoclast activity, clinical aspects. (No. 232)
Date: (8) 9–11 November 1999 in London (UK).

Applications: should be in writing addressed to: The Bursary Scheme Administrator, The Novartis Foundation, 41 Portland Place, London W1N 4BN
Fax: +44 171 436 2840.
Email:bursary@novartisfound.org.uk

Include the following information:
Full name, address and date of birth, title of symposium, qualifications and short resumé of university education, career history, including full list of publications, full details of current research, aims of future career, names and addresses of two referees.
Closing date for applications: **Thursday 1 July 1999.**

TECHNIQUES IN MOLECULAR BIOLOGY

University of Hertfordshire (UK)

For all courses, further details and application forms are available from the course organiser specified below, at Dept. of Biosciences, University of Hertfordshire, College Lane, Hatfield, Herts AL10 9AB UK.
Website: www.herts.ac.uk/natsci/STC

RNA Extraction and Analysis
A one-day laboratory/lecture course
6 July 1999.
Organiser: Dr Ralph Rapley
Tel: (01707) 285097; fax:286137
e-mail: R.Rapley@herts.ac.uk

PCR Methods and Applications
A one-day laboratory/lecture course
7 July or 8 July 1999.
Organiser: Dr Ralph Rapley,
Tel: (01707) 285097; fax:286137
e-mail: R.Rapley@herts.ac.uk

An Introduction to Bioinformatics
A two-day computer/lecture course
12–13 July 1999
Organiser: Dr Henry Brzeski,
Tel: (01707) 284554; fax:286137;
e-mail: H.Brzeski@herts.ac.uk

Microbiology Techniques
A two-day laboratory course, 6–7 Sept. 1999
Organiser: Dr Virginia Bugeja
Tel: (01707) 284590; fax:286137
e-mail: V.Bugeja@herts.ac.uk

Protein Techniques
A two-day laboratory course, 13–14 Sept. 1999
Organiser: Professor John Walker
Tel: (01707) 284546; fax:284510;
e-mail: J.M.Walker@herts.ac.uk

Nucleic Acid Techniques
A three-day laboratory course
8–10 or 15–17 Sept. 1999
Organiser: Dr Virginia Bugeja
Tel: (01707) 284590; fax:286137
e-mail: V.Bugeja@herts.ac.uk

Molecular Strategies for Drug Discovery and Design
A one-day lecture meeting, 15 Sept. 1999.
Organiser: Dr Ralph Rapley
Tel: (01707) 285097; fax:286137;
E-mail: R.Rapley@herts.ac.uk

Minutes of the BSCB Annual General Meeting

6pm, 15th April, 1999, Owen's Park, University of Manchester

President's report

Ron Laskey reported that he would be completing his presidential office this year, but was delighted to announce that Fiona Watt has agreed to take over as President from the next AGM.

Secretary's report

Birgit Lane reported that Theo Bloom and Nick LaThangue had resigned from the Committee, leaving 2 vacancies. Two names were proposed to fill the gaps: Paul Luzio (Cambridge), nominated by Viki Allen and seconded by Robert Insall and (2) Bill Earnshaw (Edinburgh), nominated by Ron Laskey and seconded by Steve Winder. These two were duly elected.

Treasurer's report

The financial report was tabled (see page 28 of this newsletter) by Stuart Kellie. There had been a total of 17 Honor Fell Travel Awards made and 3 East European Bursaries had been awarded. The Company of Biologists' contribution to travel awards will effectively increase next year.

Meetings report

The next three major meetings were announced, namely - Autumn 1999 'The Endoplasmic Reticulum' being held in Bristol 21-24 September ; Spring 2000 'The Cell Biology of Disease' in Warwick, 28-31 March (organizers Stuart Kellie and Clare Isacke), and Autumn 2000 'Cell Biology of Apoptosis' in Edinburgh 10-13 September (organizers P. Clarke, B. Earnshaw, M. Hengartner, A. Metcalfe, T. Hupp) . There was a call for volunteers for future meetings organizers, and for suggestions for topics for future meetings. The Society can sponsor small 1-day special interest meetings to £1000, for example, provided access is open to the membership.

Membership secretary's report

Steve Winder announced that there were a total of 139 new members joining this year, who were officially welcomed to the society. This is a significant increase over the last few years.

Any other business

It was agreed that in order to foster closer links between the BSCB and the BSDB during the year, one of the society officers should attend the second committee meeting which is held in the autumn. Paul Martin (BSDB) was willing to do this.

Nominations are still being sought for the BSCB Hooke Medal, for "excellence in cell biology research carried out in the UK". Please send nominations to the Secretary or to Michael Whitaker (see addresses at the back).

Members were requested to send their e-mail address to Margaret Clements so that they can be notified of events in between the Newsletter mailings. It was particularly felt that another contact was required in early spring to update the membership on the annual symposium, for example.

Kathryn Ayscough called for interesting and imaginative contributions for the Newsletter, for this summer's edition or future ones.

Two suggestions were welcomed, regarding format of meetings. Laura Machesky suggested encouraging holding satellite meetings, and Bill Earnshaw suggested recruiting interest for holding a film session within the meeting.

The British Society for Cell Biology

Trustees Report for the Year Ended 31 December 1998

The trustees have pleasure in presenting their report for the year ended 31 December 1998.

Trustees

Prof. R. Laskey (President)
Prof. E. B. Lane (Secretary)
Dr. S. Kellie (Treasurer)
Dr. C. Streuli (Meetings Secretary)
Dr. S. Winder (Membership Secretary)
Dr. K. Ayscough (Newsletter Editor)

Dr. V. Allan	Dr. R. Insall
Dr. Theo Bloom	Dr. C. Isacke
Dr. Louise Cramer	Prof. N. La Thangue
Prof. A. Hall	Dr. P. Shaw
Dr. C. Hawes	Dr. M. Stewart
Dr. S. Hughes	Prof. M. Whitaker

Contact Address

The contact address of the Society is c/o Margaret Clements, Dept. of Zoology, Downing St., Cambridge, CB2 3EJ.

Status

The Society is a registered charity, number 265816

Objects

The object of the Society is to promote the knowledge of cell biology

Review of Activities

The financial results of the Society are set out on page 28. Reports on the Society's meetings and other activities are to be found in the six-monthly Newsletter.

S. Kellie, Trustee

Independent Examiners Report to the Trustees of the British Society for Cell Biology on the Financial Statements for the Year Ended 31 December 1998

I report on the accounts of the Society for the year ended 31 December 1998, which are set out page 28.

Respective responsibilities of deacons and examiner

As the charity's trustees you are responsible for the preparation of the accounts; you consider that the audit requirement of section 43(2) of the Charities Act 1993 does not apply. It is my responsibility to state, on the basis of procedures specifies in the General Directions given by the Charity Commissioners under section 43(7) of the Act, whether particular matters have come to my attention.

Basis of the independent examiner's report

My examination was carried out in accordance with the General Directions given by the Charity Commissioners. An examination includes a review of the accounting records kept by the charity and a comparison of the accounts presented with those records. It also includes consideration of any unusual items or disclosures in the accounts, and seeking explanations from you as trustees concerning any such matters. The procedures undertaken do not provide all the evidence that would be required in an audit, and consequently I do not express an audit opinion on the view given by the accounts.

Independent examiner's statement

In connection with my examination, no matter has come to my attention:

1. which gives me reasonable cause to believe that in any material respect the requirements
   • to keep accounting records in accordance with section 41 of the Act; and
   • to prepare accounts which accord with the accounting records and to comply with the accounting requirements of the Act;
   have not been met; or
2. to which, in my opinion, attention should be drawn in order to enable a proper understanding of the accounts to be reached

David Cooke MA (Oxon) FCA, David Cooke and Co. Chartered Accountants, 6 Seacourt Road, Botley, Oxford OX2 9LD. 17 March 1999

The British Society for Cell Biology

Statement of Financial Activities for the Year Ended 31 December 1998

		1998		1997
Income				
Subscriptions		19267		19696
Mailing list		2026		1910
Interest		3528		2410
Advertisements and fliers (Newsletter)		1590		1575
Sponsored lectures		2000		–
Capitation grant from Company of Biologists		15541		14811
Meetings grant from Company of Biologists		14000		–
Meetings returns		500		1075
Other		273		198
		58725		41675
Less: expenses				
Direct Charitable				
Meetings	16713		4300	
Newsletter	7927		5118	
Honor Fell Travel Awards	17608		10375	
	42498		19793	
Administration and other expenses				
Secretarial	1036		1330	
Committee travel and expenses	1435		1585	
Subscriptions	1901		4419	
Post and stationary	2649		1003	
Fax and phone	71		71	
Bank charges	336		245	
Accountancy and audit	294		294	
Miscellaneous	181		28	
	7903		8975	
Total expenses		50401		28768
Surplus/(Deficit) for year		**8324**		**12907**

Balance sheet as at 31 December 1998

Current assets	**1998**	**1997**
Amounts receivable	–	–
National Savings Bank Investment A/C	47082	44301
Abbey National Five Star A/C	16451	15705
Midland Bank current A/C	12760	7963
	76293	67969
Less: Current Liabilities		
Creditors and accruals	294	294
Net Assets	**75999**	**67675**
Financed by:		
Accumulated Fund brought forward	67675	54678
Surplus/(deficit)	8324	12907
	75999	67675

Approved: S. Kellie, Trustee
12 April 1999

Treasurer's Report for 1998: Main Points

We had an operating surplus of £8324 this year. Our Annual Meeting made a slight surplus of £500.

Subscriptions were relatively steady. A number of untraceable/old members have resigned, but these have been replaced with new members, the majority of which are students. Out of a membership of about 1800, more than 1000 are paying by Direct Debit.

All our other major expenses for 1998 were slightly up compared with 1997. About £17,600 was spent on Honor Fell Travel Awards (up from £14,000 total in 1997), in line with the committee's policy of encouraging younger members to attend meetings. I would like to thank David Edgar for his work in administering the Travel Awards, and to Alan Hall for taking over this position.

Our major sources of income, other than subscriptions, was our Capitation Grant and Meeting Grant from the Company of Biologists, £15541 and £14000 respectively. As always, the Society is grateful to the COB for their continuing support for cell biology in the UK. We are also grateful to Yamanouchi Research Institute and Garland Publishing for their continued sponsorship Yamanouchi Lecture and the Borden Lecture at our Annual Meeting.

Our major expenditure, other than meetings, is the six-monthly Newsletter at about £9,000 including postage. However the Newsletter generated £3,600 income from adverts and mailing lists.

Other major expenditures were subscriptions to ECBO, the Institute of Biologists, and the UK Life Sciences Committee, and the Association of Women in Science, all these totalling about £1900.

New members

Aghakhani, M.R
Ahman, M.
Ashby, M.
Askham, J. M.
Avides Moreira, M. D.C.
Bass, M.
Bate, T. E.
Bennett, D.
Berry, M.G.
Bhalla, I.
Bignone, P.
Bishop, N.E.
Boyne, J.
Brady, D. M.
Brandizzi, F.
Campbell, D. H.
Carrington, M.
Chidambaram, M.
Chidgey, M.
Clements, P.
Cleverley, K.
Cobbe, N.
Collins, J.
Corfe, B.M.
Craven, R.
Creer, A.
Crouch, D.
de Sousa Barbosa, V. J.
Deak, P.
Deborde, S.
Dillon, C.
Donaldson, M. M.
Eckert, J.
Ekwall, K.
Emerson, L.
Engles, A.
Ersfeld, K.
Eugster, A. C.
Gathercole, D.
Gergely, F.
Giannini, A.L.
Gross, S.
Gulbransen, M. J.
Gunawardena, A.H.L.
Hall, M.
Hamilton, F. S.
Hammond, D.
Hampson, R.
Hastings, A.
Hendriks, E.
Highett, M.I.
Hill, C. J.
Hill, E.
Hoang, T. T.V.
Hogan, C.
Howard, M. R.
Ilsley, J.
Ivings, L.
Jenner, S.
Jopling, C.
King, L.A.
Kittler, J. T.
Knatko, E.
Langdown, M. L.
Le Quesne, J. P.C.
Lee, D. A.
Li, T-T.
Liu, K.
Loncar, D.
Longbottom, E. R.
Ludlow, A.
MacIver, F.
Mackay, R.
Mankouri, H.W.
Marshall, D.
Mathe, E.
McDonald, J. C.
Merdes, A.
Millband, D.
Minestrini, G.
Mitchell, S.
Moncur, P.
Monk, N. J.
Mulvihill, D.
Murray, P.
Nathke, I.S.
Netherton, C.L.
Niccoli, T.
Nowak, R. L.
Nuttall, A.
O'Brien, V.
O'Brien, T.
Oswald, N.
Patel, H.
Pearson, J. R.
Perng, M.
Pickersgill, H.
Pombo, A.M.P.
Ponnambalam, S.
Prigmore, E.
Procter, J.
Reddy, J.V.
Reynolds, N.
Saint-Jore, C. M.
Saint-Pol, A.
Self, T.
Sheth, B.
Siddique, T.
Starkey, K.
Stevens, F.
Stevens, M.
Sturge, J.
Sutton, D.
Swedlow, J.
Szöor, B.
Tabish, M.
Tanaka, K.
Tatum, E.
Taylor, S.
Theos, A.
Thomas, F.
Towler, M. C.
Turner, P.M.
Tweedie, J.
Tzolovsky, G.
van Deursen, F.J.
Vaughan, S. E.
Verrall, J.
Walker, D. M.
Ward, C. M.
Warren, D.
Way, M.
Weijer, C.J.
Wells, C. M.
Wenzel, C.L.
Wheeler-Jones, C.
Wilson, J.
Witherden, I.

Missing Members

If you recognize any of these members please email their current addresses as soon as possible to zoo-jeb01@lists.cam.ac.uk

Abbreviations for last known positions - Pdoc, postdoctoral; RA, research assistant or associate; RF, research fellow; PhD, PhD student; O, other.

Name & Position	Last known at
Abu-Zayyad, Amineh (PhD)	Glasgow
Allan, Irene (RF)	Birmingham
Anderson, Ross (O)	Porton Down
Anderson, Susan (O)	Glasgow
Ang, Cheng-Eng (PhD)	Manchester
Armitage, Michelle (PhD)	Manchester
Attaran, Amir (PhD)	Oxford
Barber, IS (PhD)	Birmingham
Barlow, Y (O)	Smith & Nephew, Harlow
Bayley, Chris (PhD)	Nottingham
Beausang, Eamon (RF)	Manchester
Bedells, CH (PhD)	Liverpool
Bennett, Alison (PhD)	Canterbury
Birch, Mary (O)	London
Blackbourn, Hugh (PDoc)	Cambridge
Bolton, Sa (RA) (PDoc)	Oxford
Bowden, E (PhD)	Bristol
Bridge, Alan (PhD)	Manchester
Brooks, G (RF)	London
Brown, Anna (PhD)	London
Brown, M (PhD)	Manchester
Brunet Clare (PhD)	Manchester
Burditt, Lynda (RA)	London
Burrows, Louise (PhD)	Manchester
Burton, DI (O)	Edinburgh
Bush, MS (RF)	London
Butler, Lisa (RA)	Manchester
Calderwood, DA (PhD)	Manchester
Canning, D (O)	Oxford
Carpenter K (RA)	Nottingham
Carroll A (PDoc)	Reading
Carson Fiona (PhD)	Aberdeen
Carter Julie (RA)	Liverpool
Cassella JP (RA)	Stanmore, Mdx
Chambers Caroline (PhD)	Manchester
Chan C (O)	London
Chang Sidney (RF)	London
Charlton Jillian (RA)	Edinburgh
Charlton Andrew (PhD)	Sheffield
Cheek Tim (RF)	Cambridge
Cheng Y-F D (PhD)	Aberdeen
Chesters JK (O)	Aberdeen
Chisholm Alexander (PhD)	Glasgow
Ciantar D (O)	Southampton
Clarke GD (O)	London
Cole Ellen (PhD)	Bristol
Collighan R (PhD)	Nottingham
Collinson A (PhD)	Southampton
Cook AG (RF)	Manchester
Cooper Ashley (O)	Welwyn
Cooper S (RA)	Oxford
Cordingley Hayley (O)	Welwyn
Cowell H (PhD)	Manchester
Cowley KJ (PhD)	London
Crangle KD (PhD)	Co. Londonderry
Crank S (PhD)	Wye
Crompton CM (PhD)	Dundee
Cumberland PFT (RA)	Leicester
Cumming DVE(PhD)	London
Cutts Timothy (U-grad)	Cambridge
Daniel MR (RF)	Bebington
Davies R (O)	Carshalton
Dawson S (RA)	Manchester
Delcommenne M (PDoc)	Manchester

Deng Wu-Min (PhD)	Edinburgh
Devlin J (PhD)	Oxted
Dickin S (PhD)	Cambridge
Ding Jennifer (PhD)	Manchester
Dodsworth SJ (PhD)	Nottingham
Doherty Mary Jo (PDoc)	Manchester
Donnelly Shaun (PhD)	London
Dornan AJ (PhD)	Glasgow
Doyle Melanie (RA)	London
Drummond Douglas (PDoc)	Manchester
Duncanson S (PhD)	Glasgow
Edwards Susan (PhD)	Oxford
Ellis D (PhD)	Dundee
Ellison Derek (RA)	Manchester
Errington Rachel (PhD)	Oxford
Evans Anita (RA)	Bedford
Evans PM (RA)	Dyfed
Faccini-Chisholm SM (PDoc)	Glasgow
Farrell Siobhan (RA)	Windsor
Farrell Frank (PhD)	Co. Londonderry
Flear Andrea (PhD)	Oxford
Foreman DM (PDoc)	Manchester
Freeman TC (RA)	Cambridge
Gamble JA (PhD)	Cambridge
Gibson WT (O)	Bedford
Gooday Douglas (PhD)	Edinburgh
Goodwin Stephen (PhD)	Glasgow
Goold R (PhD)	Canterbury
Gordon AT (PhD)	Nottingham
Gourdie Robert (RF)	London
Grant Angela (PhD)	Aberdeen
Grant AR (O)	London
Gray Andrew (PhD)	London
Grey AM (RA)	Manchester
Griffin Steven (O)	Newcastle
Hansford R (O)	Poole, Dorset
Harbison D (PhD)	Edinburgh
Hardy David (PDoc)	Manchester
Harkness P (PhD)	Cambridge
Haston Wendy (O)	Aberdeen
Hattersley G (RA)	London
Hawcroft Gillian (PhD)	Manchester
Hawes S (PhD)	London
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Hola J.M.R.K. (PDoc)	London
Holmes Toby (RA)	Manchester
Horsley David (PhD)	Oxford
Hourihan Helen (RA)	Manchester
Howitt Simone (PhD)	London
Hughes PJ (PhD)	Liverpool
Hull RA (O)	Oxford
Hunt S. (O)	Lancaster
Hyde-Dunn J (PhD)	London
Jackson Caroline S. (PDoc)	London
Jacobs Howard (RF).	Glasgow
Jacobs M	London
Jacobson Michael (Pdoc)	London
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Prigent S (O)	Cambridge
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Quinn Paul (O)	London
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Sherwin T (O)	Manchester
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Applications (including a copy of the meeting registration form) should be sent to Alan Hall (MRC Laboratory for Molecular Cell Biology University College London, Gower Street, London WC1E 6BT)) using a copy of the form below.

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

- Awards are not normally made to applicants aged over 35
- Applicants must have been BSCB members for at least a year.
- No applicant will receive more than one award per year or three *in toto.*
- The applicant must be contributing a poster or talk.

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Present position (graduate students give start year of PhD): .....

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Date of joining BSCB: .....

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Key publications (2) or research interests:

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Meeting for which application is made (Title, place, date): .....

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Subsistence: .....

Registration: .....

Other: .....

Have you submitted any other applications for financial support?: YES NO

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Number of meetings attended last year: .....

Supporting statement by Head of Department:

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2) .....

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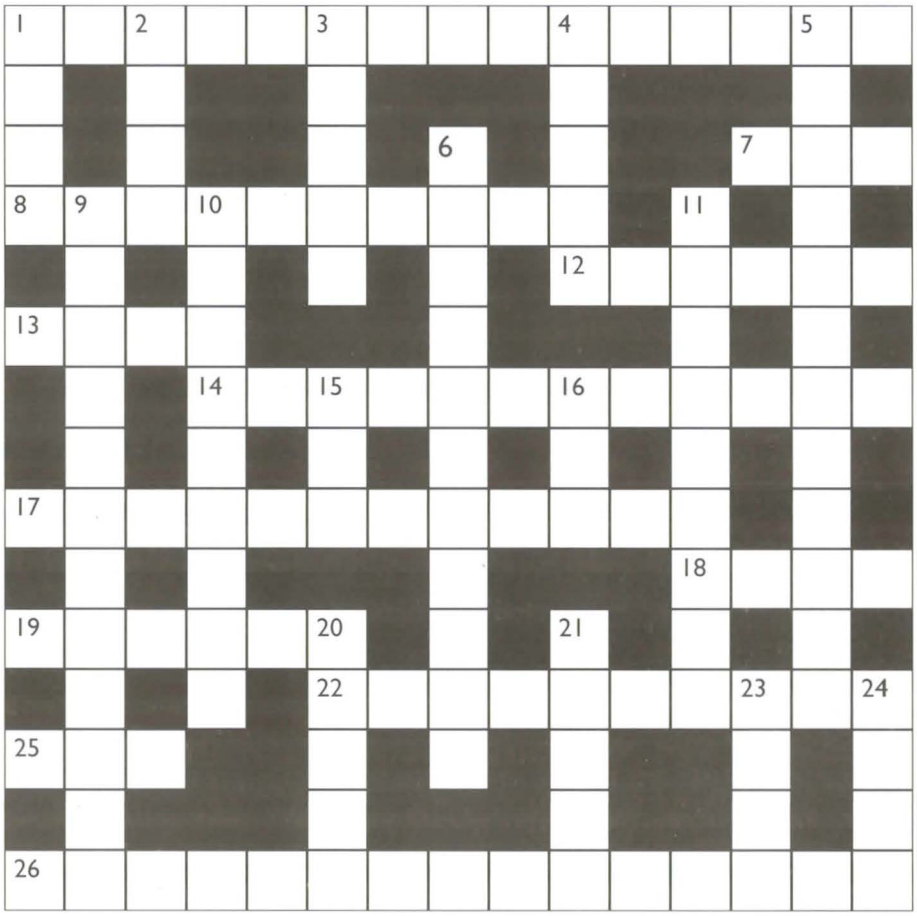
'The Committee' Crossword

Steve Winder



Across

1. Rich ales results in meeting secretary's. 7,8
7. The end, of eggs. 3
8. Plain bathroom wall covering for secretary. 4,6
12. Hydrodynamic effects on endothelium. 6
13. Mitogen-activated or microtubule-associated phosphorylator. 4
14. Clever homicidal treasurer. 6,6
17. Centromere targeting motif. 6, 6
18. Phylogenetic representation. 4
19. Happy gel, run too fast. 6
22. A cell without a wall. 10
25. Affirmative kinase. 3
26. Trashy young hack edits newsletter. 7,8

Down

1. cAMP regulated transcription factor. 4
2. Seaweed gels. 4
3. Often stained with haematoxylin. 5
4. Contractile structures. 5
5. Membership secretary's information upside down. 8, 4
6. 9 down needed this to escape the primordial soup? 5, 6
9. Motile lower eukaryote. 12
10. Our President, like single 13 across. 3, 2, 4
11. Lens esculenta 3, 5
15. Inevitable result of 4 down. 3
16. Thousand Daltons. 3
20. Electro MS, wash. 5
21. Often coiled in two or more. 5
23. TaqI site translated. 4
24. Old name for NADPH.

Solution can be found on the BSCB Web page. Fancy yourself as a crossword compiler. Like to see your name in print? Send your crosswords, on a BSCB-related theme, to the newsletter editor.

British Society for Cell Biology Committee Members 1998

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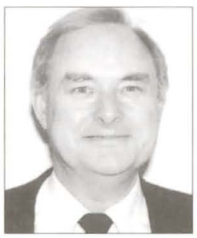

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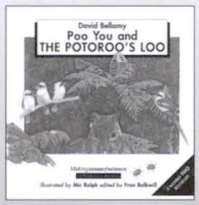

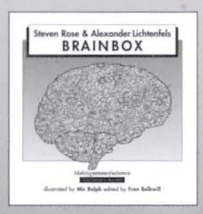

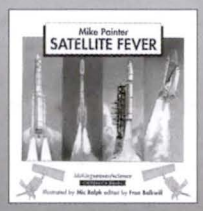

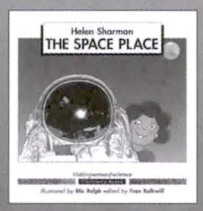

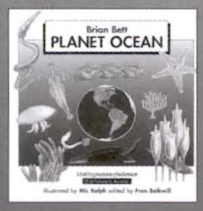

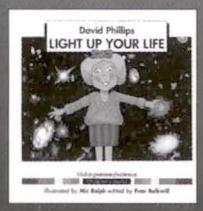

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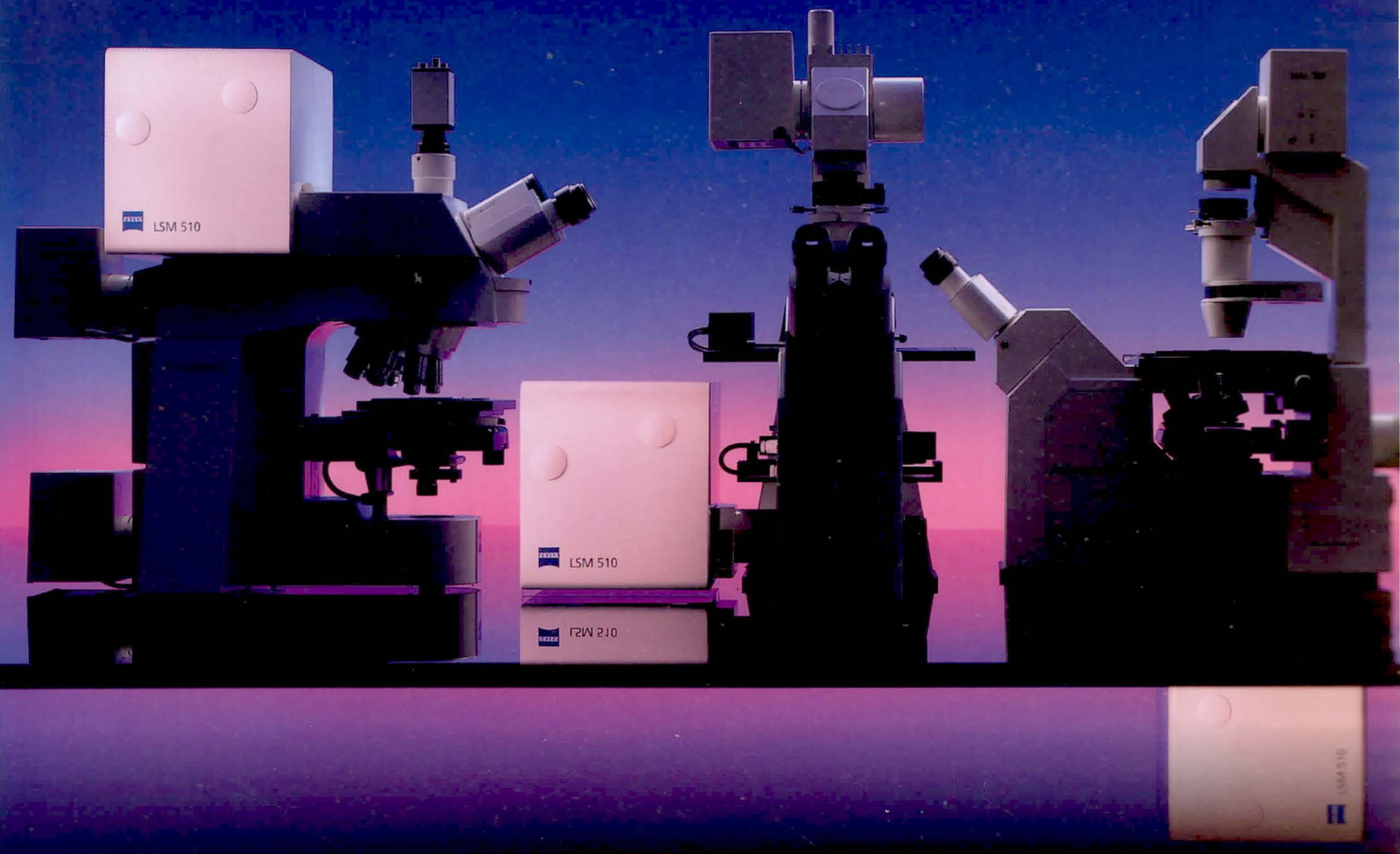

up. . .side . . .down

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