BSDB Newsletter

Winter 2006
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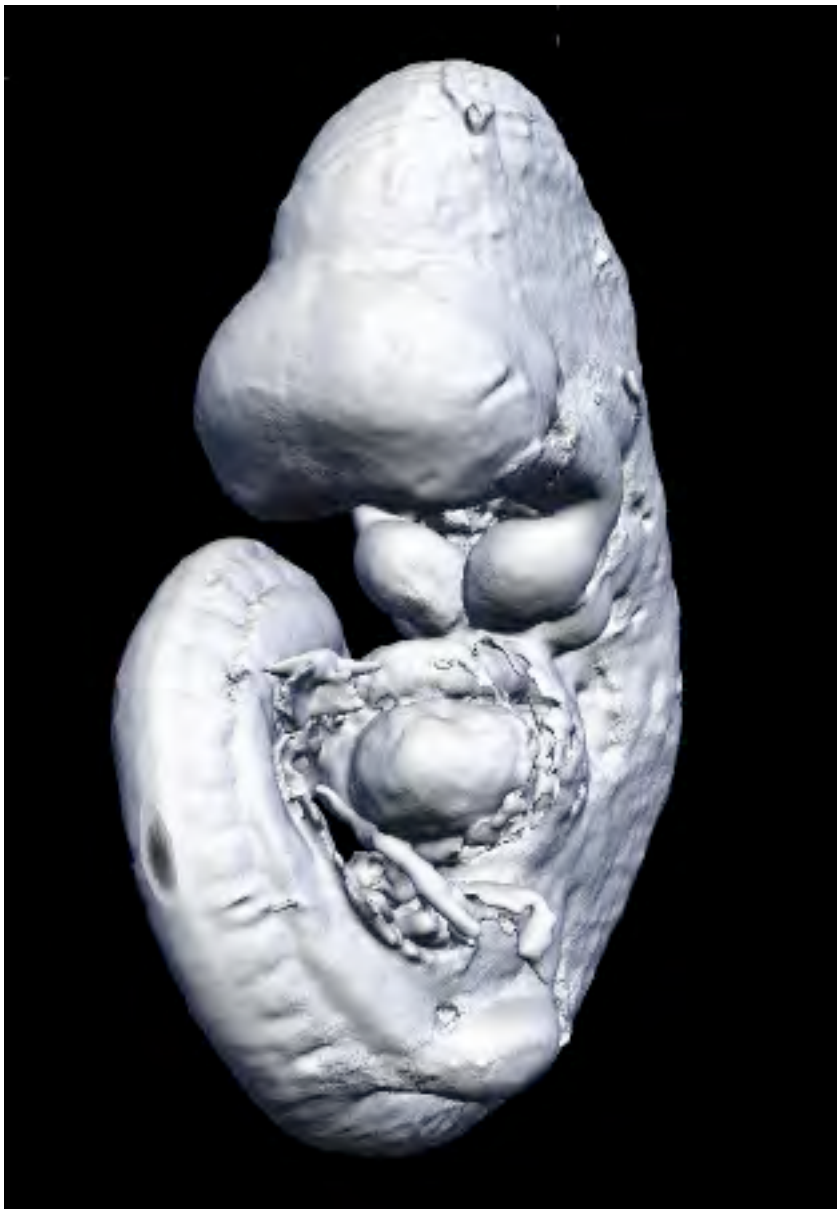
British Society for Developmental Biology

www.bsdb.org



Spring Symposium 2007: Edinburgh

Also in this issue:

Editorial

It does not seem six months since the Summer edition came off the virtual press, but here we are again. I hope you find something of interest in here. And as always, if there is some topic you come across that you think we should cover, then let me know (or even better, offer to write something!). Once again, I'm grateful for all the contributions in this issue, given remarkably freely by busy people.

You will see that we have an excellent Spring meeting to be held here in Edinburgh. There isn't a great deal of time until the first registration deadline, so make sure you don't put off registering until it's too late. As well as our other BSDB meetings in the pipeline, Nancy Papalopulu, Matthew Freeman, Guy Tear are already working very hard to ensure that the 2009 ISDB meeting (also in Edinburgh) will be a success. This is a huge undertaking, and we shall keep you updated in future newsletters.

In the last newsletter, we had article about the RIKEN Institute in Japan. I discovered subsequently that the great-looking manga image somewhat masked the text after compression of the pdf document. A corrected pdf file has been posted on the BSDB website. There is no similar 'Institute article' in this Winter issue, but I hope to have one in the next newsletter.

Finally, anecdotal evidence suggests that it really is useful to the Society if you can print out this newsletter and leave it in your coffee room, cafeteria, etc. We have a healthy membership, but we can do better.

Andrew Jarman, Editor

andrew.jarman@ed.ac.uk

Contents

Help us spread the word

Please print out a copy of this newsletter and leave it in a strategic place, such as your coffee room or staff room.

Cover image

Thanks to Tammy Yu, Centre for Integrative Physiology, University of Edinburgh

From the Chairman

Since great scientific meetings are the BSDB's primary goal and main investment, I am happy to report on the success of the recent Autumn meeting in Dundee on Signal Transduction and Integration in Embryonic Development. Those attending included an eclectic and international mix of mathematicians, theoreticians and experimental developmental biologists. This illustrates that BSDB Autumn Meetings, although smaller and usually more focused than our Spring Meetings, are equally high quality. If they happen to overlap with your field, they should not be missed; and if they don't overlap, consider proposing one!

In this case, real thanks are due to **Kate Storey** and **Cheryl Tickle** for putting together such an excellent speaker list and doing so much of the local organisation. There can also never be too many thanks to **Guy Tear** and **Nancy Papalopulu** for their almost unending efforts to ensure, respectively, that meeting budgets are credible and that meeting organisation effective. Between them they filled the venue and organised a scientifically first rate meeting – primary goal achieved!

Although meetings are our main output there are others. Most important in my view is the funding that we are able to give young, and young-ish, scientists to attend meetings – both BSDB meetings and a wide range of foreign meetings. A really significant proportion of UK developmental biologists have benefited from this support during their early careers and given the impact attending your first meeting can have, I suspect BSDB can claim indirect credit for the decision of many people to choose a career in science.

We also produce the newsletter you are now reading, run a website, award prestigious medals to junior and senior scientists, represent the field in the policy arena as members of the Biosciences Forum, and have recently started to develop a strand of educational resources, with the aim of engaging school pupils and exciting them about the possibilities of a career in biology.

This is quite an impressive list for a society that has modest resources and no professional staff. (Lest this could be mistaken for immodesty on the part of the chairman, let me stress as I have before that the bulk of the work is done by the other officers and committee members.) But perhaps we could do still more. Or maybe you think that some of our efforts are not as effective as they should be. It's a bit of a cliché to say that this is your society, but it is nonetheless true, and the committee and I are always interested in getting feedback about how we are doing and on what the society should be focusing.

I'm not claiming we can do everything, and I am clear that for now at least, organising excellent but affordable meetings is our highest priority. Unlike some societies, we are not rolling in funds from publishing profitable journals. But none of this should stop us from keeping a weather eye on how we can be of most value to our members. How can we help you?

Matthew Freeman
MRC Laboratory for Molecular Biology
Cambridge

"It's a bit of a cliché to say that this is your society, but it is nonetheless true, and we are always interested in getting feedback about how we are doing and on what the society should be focusing"

Developmental biology education webpages

As part of our ongoing efforts to increase awareness of developmental biology, educational pages are now on the BSDB website. The main target audience is fifth and sixth form school children and the lay public; it may also be a useful introduction for new students. The aim of the resource is to provide an introduction to developmental biology, its wider relevance, and some of the general principles that have been discovered. The text is organised with a simple front page (why developmental biology is relevant, what happens during development, how it is studied, model organisms, etc) that links to more detailed and technical information on each topic. There is also a glossary of terms used in developmental biology. We will be adding pictures and movies to illustrate each of the topics. We are initiating various schemes to make school children aware of this resource, including the production of a BSDB poster for schools.

You can help in a number of ways to help further develop this educational resource. Read the educational pages, and use the feedback form to make suggestions of how they can be improved. The link to the resource is found under 'What is developmental biology' on the BSDB homepage. We are searching for nice pictures to illustrate the site, and I will be very pleased to receive any that you think suitable (email: dwilkin@nimr.mrc.ac.uk) - to avoid copyright issues, preferably these should be unpublished. And please draw this resource to the attention of any schools contacts, and of your colleagues who may have such contacts.

David Wilkinson
BSDB committee

Plea for JEEM donations

The Company of Biologists is looking for donations. No, not monetary donations – those pleas usually go *from* us *to* them! This is from Jane Alfred, Executive Editor of *Development*:

"We need donations of early volumes of JEEM - *Journal of Embryology and Experimental Morphology* (*Development's* predecessor), which we want to digitise and make freely available on our website. Unfortunately the conversion does result in destruction of the journals as they are despined in order to feed them through the scanning robot, so we do need donations rather than loans."

The volumes needed to complete their set are: 1-14 and 28,29,30 and 82,83, 89 and 97. Please contact Jane if you can help (jane@biologists.com).

Have your say

If you have news, letters, or comments you would like aired to the developmental biology community, please write to the Editor (andrew.jarman@ed.ac.uk)

Education

"We are searching for nice pictures to illustrate the site, and I will be very pleased to receive any that you think suitable"

Do your contact details need updating?

As always, it's a hard job keeping the database of the Society membership up to date. If you change your address, please remember to send us the details. You can use a new online feedback form to give us this information.

http://www.bms.ed.ac.uk/services/webspace/bsdb/Bsdbfeedbackform3.htm.

Financial report

"We awarded £24,975 to members to attend BSDB meetings"

Our financial statement for the year ending July 31st 2006 is presented below. I am pleased to report that the Society is in good financial stead. We had two very successful meetings this year at Aberdeen and York which were both very well attended. Aberdeen being particularly successful as it made a small profit. This has allowed me to again increase the amount we were able to spend on Travel Grants. We awarded £24,975 to members to attend BSDB meetings. Unfortunately we were unable to meet the considerable demand for Travel Grants to attend the York meeting. We had to restrict awards to those who were presenting at the meeting and paying the correct annual subscription. We also had to restrict awards to a maximum of two per research group of which only one could be a postdoc. More awards could be made if everyone upgraded their standing orders to the new subscriptions introduced in 2004. This is needed to keep the Society healthy and allow us to continue providing Travel Awards to our meetings. The continued generous support of the Company of Biologists also allows us both to subsidise the costs of our meetings and to support members to travel to meetings or courses overseas. This year we provided £23,340 to members to attend meetings outside the UK. Happily we finished the year showing a slight surplus sufficient to maintain our assets at an appropriate level.

Subscription information

Are you paying your fair share?

We still have a 'hard core' of members who are paying less than they should. Please check your standing order today and update if necessary!

Full members	**£35** per annum
Student members	**£15** per annum

Currently BSDB members pay their subscription to the Society through a standing order. This means that it is the member's responsibility to instruct their bank to increase their standing order. Please take the time to update your standing order. A form for you to complete and send to your bank is available on the Membership page of the BSDB website: http://www.bsdb.org.

The Society is pushing forward with plans to collect your membership fees by Direct Debit in the future which will allow us to more efficiently collect your subscriptions from your bank accounts.

Student members

Student members that joined the Society in 2002 are politely reminded that they should now upgrade their subscription to the full member rate of £35.

FINANCIAL STATEMENT - YEAR ENDING JULY 31st 2006

Balance Sheet

2004/05 £		2005/06 £
	Investments	
114,328	Baillie Gifford Managed Fund	127,715
	Current Assets	
10,383	Barclays Bank High Interest Account (1)	10,576
19,895	Barclays Bank Current Account	27,447
2,933	Barclays Bank: Louie Hamilton Account (1,2)	2,960
33,211		40,983
5,772	Less: Unpresented cheques	2,395
- 2,670	Debtors – Creditors	-5,475
24,769	Net Current Assets	33,113
139,097	**Total Funds**	**160,828**

Income & Expenditure Account

Income	£	Expenditure	£
Membership (Standing Order)	25529	Grants (Overseas & Courses)	23340
Membership (Cheques)	1279	Grants (BSBD Meetings)	24975
Block Grant (CoB)	25000	Small meetings and other DB meetings	550
Travel grant fund (CoB)	20000	Autumn Meeting 2005 (Aberdeen)	0
Sales	251	Spring Meeting 2006 (York)	6166
Spring Meeting 2006 (York)	300	Prizes	1477
Autumn Meeting 2005 (Aberdeen)	1714	Administration	3737
		Committee Expenses	2228
		Newsletter	0
		BSF	1524
		Bank Charges	59
		Spring Meeting 2005 (Warwick)	521
		Refunds of overpayments	1371
Interest and Investment Appreciation:			
Barclays High Interest a/c	192		
Barclays Louie Hamilton a/c	28		
Total Income	**74,292**	Total Expenditure	**65,949**
		Net Surplus for the Year	**8,343**
		Unrealised Gains on Baillie Gifford	13,387
		Fund balance at 31st July 2004	139,097
		Fund balance at 31st July 2005	**160,828**

Notes

These accounts were prepared under the accrual basis convention, in accordance with the applicable accounting standards and Recommended Practice of Accounting by Charities. There have been no major changes to our financial arrangements this year.

1. The Barclay High Interest and Louie Hamilton account valuations are at 30.6.05

2. This is the only restricted account and no call was made on it in the financial year 2003/04

Travel grants

BSDB Spring and Autumn meetings

These are the only UK meetings for which there is BSDB support. Grants cover cost of registration and basic travel if funds permit. Currently we are receiving more applications than we can fund in full and preference is given to members who present posters. BSDB members based abroad are eligible for a contribution (max. £400) to attend our meetings. All applications for travel grants to attend BSDB meetings MUST be in the hands of the Treasurer by the published deadline.

The deadline for Spring Symposium 2007 is 31 December 2006

Overseas meetings

There is considerable demand for funds to travel to meetings overseas. Applications are collected each month and a decision on awards made at the end of the month, with funds awarded according to the remaining budget. To allow us to fund as many applicants as possible we are currently limiting awards to a maximum of £400. The total amount needed is taken into account when deciding the amount of the award; however those artificially inflating their request will be penalised. Preference is given to members presenting work at the meetings.

Practical courses

The BSBD will also provide funds up to a maximum of £500 for members to attend courses or to visit laboratories overseas. These applications are considered alongside those for overseas meetings.

Applying for a travel grant

Members should complete a Travel Grant Application form and send it to the Treasurer. Forms can be downloaded from the BSDB website: www.bsdb.org .

Applications for overseas meetings are advised to be submitted 3-4 months in advance so that the BSDB contribution can be used as a lever to prise the rest of the money from other sources. Grants will NOT be awarded in arrears.

Please note: Nobody will be awarded more than one travel grant per year for an overseas trip. No more than two people from one department or one person from a group will be awarded a grant to a particular meeting.

Deadline for Spring Symposium

If you want a travel grant for the Spring Symposium 2007, you MUST apply by 31 December 2006

Warning!

Only members paying the correct subscription to the Society will be eligible for a Travel Grant

Seed funding for small meetings

Members may approach the Treasurer for seed funding to help with organising developmental biology events (e.g. one-day meetings) that involve other institutions and at which students and postdocs are encouraged to attend and present work. The BSDB currently supports the meetings of several local developmental biology groups with small (~£250) annual contributions. Any further requests for this type of funding should be made in a letter to the Treasurer.

Louie Hamilton Fund

There is a small amount of money available from the Louie Hamilton Fund to provide travel support for handicapped members. Applicants should contact the Treasurer.

Easier payment option for overseas members

It is possible to pay your subscription by PayPal. This facility is primarily aimed at our overseas members. The process is fairly painless and full instructions can be found on our webpage.

http://www.bms.ed.ac.uk/services/webspace/bsdb/BSDBpaypal.htm

The Graduate Students' Section

Student events at Spring 2007 meeting

The next BSDB Spring Symposium will be from the 29th of March to the 1st of April 2007 at Heriot-Watt University in Edinburgh. We are organising a lunchtime Student Talk Workshop. This is an opportunity for us to practice our presentation skills, get feedback from fellow students, find out more about other people's research and of course network and meet friends. Sign up for it on the registration form.

At the symposium this year, we shall be having a poster prize for best poster as judged by a student committee (in addition to the usual poster prizes). So, I need volunteer students to be part of a Student Poster Judging Committee. I also need volunteers to help out with the running of the conference (i.e. holding microphones for people asking questions!). Ideally for ease of organisation, volunteers should be based in or around Edinburgh. Please email me a.s.a.p. if you would like to take part in these initiatives.

Raphaela Kitson-Pantano
3rd year PhD, University of Edinburgh, s9902690@sms.ed.ac.uk

It's up to you!
Please, please submit something. If you wish to remain anonymous about tips and stories let me know but in all cases could you please give me your name, the name of your institution and your year of study!

Tip of the day
Tissue dissection works best after one cup of coffee (J. Young, 3rd year PhD student). What's your optimum caffeine loading? Did you do a proper titration (0–10 cups say)?

Student Ambassadors

Let me know if you would like to be a student ambassador for your University. The job involves advertising the BSDB society to fellow students as well as the newsletter and encouraging people to write for the newsletter. This is a great quality to put on a CV and it is also a rewarding activity. Please email me asap if you would like to take part in this initiative.

Facebook — keeping in touch

I mentioned in the last newsletter the possibility of using Facebook as a means of communication for us grad students. This is now up and running. People have signed up and are successfully using this as a means of communicating. Don't miss out. Sign up now. It's easy! Just log on to www.facebook.com. Register if you are not already a member and join the BSDB graduate student group.

Unbelievable but true!
Unbelievably, no tragic stories have happened lately in my lab! How about you? Stabbed yourself with a Gilson? Tell us and you could be published in the next edition.

Coming soon — BSDB T-shirts

We are all of course proud to be members of the BSDB. I'm in the process of producing BSDB T shirts that we can wear with pride! Check the website for further details in the next few weeks.

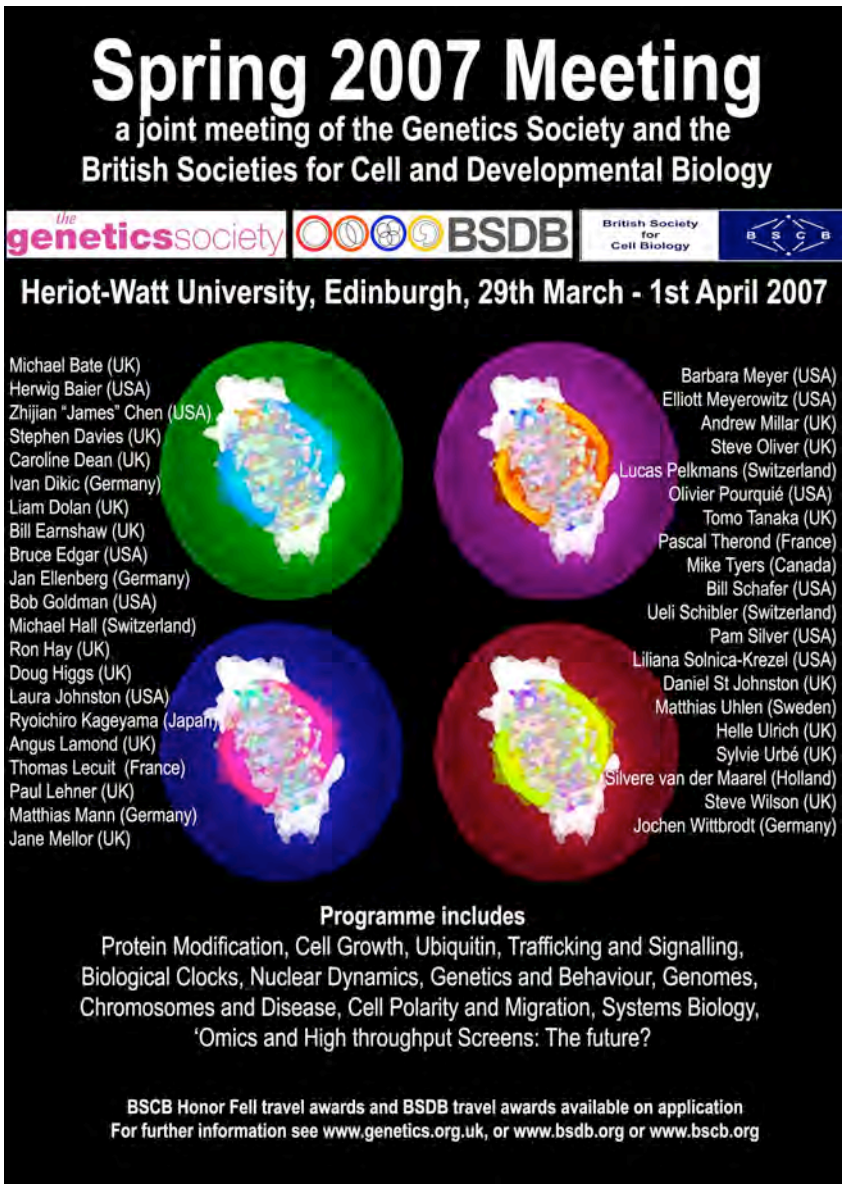
Student membership rates

"If you are not paying £15 for your student membership, you're not paying the correct amount!", said our society Treasurer. Make sure you are paying the right amount or you might not be awarded travel grants or other benefits when you next apply.

Writing for the newsletter

Why not submit something to the newsletter? If you wish to remain anonymous about your easy tips and your stories, let me know, but in all cases could you please give me your name, name of institution and year of study.

Questions?
Complaints?
Is there anything you would like me to raise for you at Committee meetings? Anything you would like to discuss? Don't hesitate to tell me: s9902690@sms.ed.ac.uk



Times are a-changing in the world of journals

Andrew Jarman
Centre for Integrative Physiology
University of Edinburgh

The future is PLoS?
"Online readers can grade papers, allowing individual paper rankings to be produced."

You can't fail to have noticed that scientific publishing has been undergoing monumental changes. The established system of submission> editorial screening>peer review> revision>publication is coming under pressure from a variety of alternative models. It may be too early to say how the publishing landscape will look once things have settled down, but some of new methods look very interesting. BioMed Central journals invite comments on papers from readers online. A new Public Library of Science (PLoS) journal (PLoS ONE – http://www.plosone.org/) goes a stage further in that after publication "papers are opened up for interactive discussions and assessment in which the whole scientific community can be involved". This will involve Annotations (virtual Post-It notes to comment on a specific point in the text), Debates, and even Ratings, where online readers can grade papers, allowing individual paper rankings to be produced. It all sounds a bit scary, but unlike pre-publication peer review, none of these post-publication opinions will be anonymous – you have to register to give your opinion.

Another significant change is the continued move to Open Access. This refers to the publishing model in which the expenses associated with publishing are moved from the reader (e.g. journal subscriber) to the author. In other words, authors pay a fee to get a paper published, rather than readers paying a fee (subscription) to access the paper. Clearly this has significant benefits in terms of free availability of knowledge (assuming authors can find the money), and it has a lot of support from funders, particularly the Wellcome Trust here in the UK. In fact, Wellcome have gone the whole hog and now stipulate as a condition of award that any Wellcome-funded research *must* be published in a journal that allows it to be freely accessible. This means not only open access, but also that the paper must be deposited in online open-access archives within six months of publication. Such archives include PubMed Central, PMC, and an anticipated UK version, UKPMC. Whilst initially this might seem both restrictive and burdensome to researchers, in practice it should be neither of these.

For a start, Wellcome provides funding to cover the extra open access costs. As to which journals qualify, obviously the new open access journals published by PLoS and BMC comply with the Wellcome conditions automatically. However, many of the more traditional journals also have an 'open access option', in which the author can choose to pay a fee in return for the individual paper getting open access status. In each of these cases, the author need do nothing extra. Most other journals allow you to archive your paper even without the open access option, although there are notable differences as to whether you are allowed to archive the publisher-generated pdf or just your final peer-reviewed manuscript.

So which journals are we now prevented from publishing in? In fact, I had a hard job finding any developmental biology journal that didn't satisfy the Wellcome open access stipulations in one way or another. How did I find this out? Simply by searching the online database called RoMEO on SHERPA at the University of Nottingham (http://www.sherpa.ac.uk/romeo.php).

Wellcome has very clear guidelines on their website (http://www.wellcome.ac.uk/doc_WTD018855.html), which it would pay all researchers to read, not just those with Wellcome funding.

News from the British Science Federation

The BSF has grown in strength during the summer months. This is because we have made two important appointments to help with the policy work. First, we have recruited Dr Caroline Wallace. She will have particular responsibility for our Animals Science Group and our European Liaison Group. Caroline has a PhD in molecular biology and has worked with us for the last two years in a contract/consultancy role. The second appointee is Dr Richard Bateman. He has resigned from a senior position at The Natural History Museum to become our Head of Policy in a part time capacity. With his background in systematics and plant science he will increase the width of our "in house" skill base. These important appointments have become possible because of increased membership and, importantly, a substantial voluntary increase in the subscription paid by several Member Organisations. As a consequence of these appointments we will be even more effective than hitherto in reacting to Government and other enquiries and initiatives. More significantly, we will be able to be more proactive. That is, we can start to identify initiatives as they are born and influence their gestation, and also give birth to some ourselves. In this context, the BSF will look to you, the Member Organisation and the individual, to help with horizon scanning and the identification of areas where we should take the lead.

Have you seen our response to the Cooksey enquiry? If you haven't, it is on our web site and it gives you some idea about what we are doing for you. I am sure you know that Cooksey is concerned with putting the funding for NHS Research and Development under the same umbrella organisation as MRC grant awards. Following our submission, the BSF was invited to a meeting with the Cooksey team to discuss four questions. In summary, these can be distilled down to two points. They were about translation (the conversion of world class science to medicines and improved clinical practice) and the incentives to offer scientists, Departments and Universities in order to achieve this goal. We sat at tables of eight and took it in turns to give our answers to the questions. Interestingly, the answers reflected a broad swathe of agreement that both translation and incentives were not only desirable but essential. However we did not tackle what I believe to be a central concern for the BSF. That is, under which *modus vivendi* will the new joint fund operate? Will it be that of the MRC or that of the NHS. We are absolutely clear about this question: it has to be that of the MRC. We should only give grants for potentially excellent world class research. If areas need strengthening we should not pretend that the science is excellent in order to make an award. If the country needs to strengthen an area then earmarked funds should be used for this explicit purpose. The marriage of funds for world class research and capacity building generally reduces the integrity of awards for both.

By the time that you read this we will have submitted our views about new RAE metrics to the Department for Education and Skills. The BSF strongly holds the view that a metrics only approach to the RAE after 2008 is wholly undesirable. The Federation takes the view that metrics should be there to guide and inform panels but we cannot imagine a suitable series of stand alone algorithms for dealing with all the complexities and different emphases across the biosciences. We also hold the view that metrics should not only be about inputs (for example, grant income) but also about outputs (for example, citations). However the key element is that metrics are assessed by people and not software.

How do we undertake these policy reviews? From this summer we have developed a closer relationship with your Society in order that we might work together more effectively on key policy issues for the biosciences. As an issue comes to the fore, we write to all Member Organisations and ask them if they want to nominate someone to be a member of an *ad hoc* task force to work on our response. Therefore if this sort of work interests you at all – and you have something to say (!) – you should let the Society know.

Emma Southern
BSF
esouthern.bsf@physoc.org

Are you a postdoc or graduate student looking for a job? If you are, you should find a new page on the BSF web site helpful. This page provides links with very many of the sites that you might want to look at for job advertisements. If you think that there are important links missing please inform Dr Emma Southern

BSDB/BSCB/GenSoc Spring Symposium 2007

Further details

For full up-to-date programme details and links to the registration form:

http://www.bsdb.org

Edinburgh Conference Centre, Heriot-Watt University, Edinburgh
29 March–1 April 2007

BSDB organisers: Alison Woollard and David Wilkinson.

Joint meeting with the BSCB and Genetics Society.

Edinburgh Conference Centre has high quality facilities and accommodation and is situated on the outskirts of historic Edinburgh, close to air and rail services.

- Plenary speakers: Barbara Meyer, Elliot Meyerowitz, Matthias Mann.

- Workshops: 'Setting up your own lab' and 'Student research talks'.

- Medal Lectures for all three societies

- Social session for student members

- 14 short talks selected from abstracts

- Several poster prizes (BSDB 1st poster prize is a trip to the Annual SDB meeting in USA)

Travel grant deadline: 31 December 2006.

Sessions (and Chairs)

Protein modification (Ron Hay)

Cell growth (Laura Johnston)

Ubiquitin, trafficking and signalling (Sylvie Urbé)

Biological clocks (Olivier Pourquie)

Nuclear dynamics (Bill Earnshaw)

Genetics of behaviour (Michael Bate)

Genomes, chromosomes and disease (Bob Goldman)

Cell polarity and migration (Daniel St Johnston)

Systems biology, 'omics' and high-throughput screens: the future? (Matthias Mann)

BSDB Autumn Meeting 2007

Latest meetings news

Check the BSDB website for latest meetings updates and to submit details of meetings to be advertised to members.

http://www.bsdb.org

Systems Approaches to Development

University of Sheffield. 5–7 September 2007

Organisers: Andrew Fleming, Alfonso Martinez-Arias, Nick Monk.

There has been a recent surge in interest in the incorporation of modelling approaches in developmental biology. This meeting aims to provide an overview across a range of biological systems and levels of organization of the progress that has been made in this emerging area of developmental biology. The approaches include quantitative aspects of developmental biology, the acquisition of large-scale data sets and the use of mathematical and computational techniques to interpret these data. The meeting will be of interest to a broad spectrum of developmental biologists, as well as systems biologists and modellers with an interest in development.

Speakers include:

Richard Adams (UK), Malcolm Bennet (UK), Enrico Coen (UK), Marcos Gonzalez-Gaitan (D), Dirk Inze (B), Johannes Jaeger (UK), Hans Othmer (USA), Luis Serrano (D), James Sharpe (E), John Tyson (USA), Lewis Wolpert (UK)

Future BSDB meetings

BSDB Spring Symposium 2008

Warwick, 16-20 March 2008

Joint Symposium with BSCB.

BSDB organisers: Mike Taylor and James Briscoe

Participants will include Sean Carroll, Eileen Furlong, Margaret Buckingham, and Helen Blau.

Autumn 2008

Seville, Spain, 24–27 September 2008

Joint meeting with Spanish Society for Developmental Biology.

Organisers, James Castelli-Gair, Acaimo Gonzales-Reyes, Alicia Hidalgo, Robert Kelsh.

Spring/Autumn 2009

Edinburgh International Conference Centre, Edinburgh, Scotland, 6-10 September 2009

The Spring and Autumn meetings will be subsumed in the ISDB 16th International Congress of Developmental Biologists.

Ideas for a meeting?

A major task of the BSDB Committee is to host high quality scientific meetings. We welcome suggestions for future topics for meetings or for a half-day themed session at the Spring Symposium. Contact Nancy Papalopulu

Other meetings of interest

19th Head Group Meeting

January 8, 2007
Institute of Child Health
University College, London

http://www.ich.ucl.ac.uk/ich/academicunits/Developmental_biology/NewsandEvents

SEMM Workshop on Cell Migration: from Molecules to

12-14 May 2007
IFOM-IEO Campus, Milan.
The topics of the workshop are: Cytoskeleton/signaling and spatial information/model organisms/imaging/diseases.

Invited speakers: Avri Ben-Ze'ev, Israel; Elaine Fuchs, US; Frank B. Gertler, US; Gregg Gundersen, US; Marie-France Carlier, France Klaus Hahn, US; Stefan Linder, Germany; Pekka Lappalainen, Finland; Catherine Nobes, UK; Tadaomi Takenawa, Japan; Denise Montell, US; Erez Raz, Germany; Ralf Adams, UK; Gerhard Christofori, Switzerland; Dorit Hanein, US; Peter Friedl, Germany; Cornelis J. Weijer, UK
For application and further information: http://www.semm.it/workshop/cellmig07 or events@semm.it.
Early submission and registration deadline: January 15, 2007

Royal Society: Calcium signals and developmental patterning

February 19-20, 2007
Royal Society, London

http://www.royalsoc.ac.uk/event.asp?id=4159&month=2,2007

66th Annual SDB Meeting: First Pan-American Congress on Developmental Biology

June 16-20, 2007
Hotel Gran Melia, Cancun, Mexico
http://www.sdbonline.org/PACDB/PACDB.htm

American Society for Cell Biology and European Forum Summer Meeting

June 27-30, 2007
Dijon, France
http://www.ascb.org/meetings/summer/

British Society for Cell Biology Autumn Meeting

September 9-12, 2007
St Catherine's College, Oxford
http://www.kcl.ac.uk/kis/schools/life_sciences/biomed/bscb/meetings/index.html

Latest meetings news

Check the BSDB website for latest meetings updates and to submit details of meetings to be advertised to members. http://www.bsdb.org

Meeting Reports

International Conference on Limb Development and Regeneration

Awaji, Japan, 2006

Fiona Bangs
School of Life Sciences
University of Dundee

This year, it was Japan's turn to host the biennial International Conference on Limb Development and Regeneration. The reason behind this choice of venue was to mark the retirement of Professor Ide, who made considerable contributions to the field of limb development. The venue was the luxurious Awaji conference centre, in the middle of the Awaji Island off the east coast of one of Japans largest Islands near Osaka. It was a small meeting with approximately 90 delegates allowing representatives from each lab to present their work.

The first session on limb formation was hosted by Malcolm Logan from the National Institute for Medical Research, who also opened the session with a talk about *Tbx5.* This gene is expressed in the forelimb bud and expression is maintained as the limb develops. Using a tamoxifen inducible Cre recombinase under the control of a limb specific promoter Prx1, he was able to show that early knock out of *Tbx5* produced an embryo with no forelimb. However, if *Tbx5* is knocked out at E10.5 or later no affect on forelimb formation was seen indicating early expression of *Tbx5* is required for forelimb initiation. Following on the same theme we heard from Benoit Bruneau from the Hospital for Sick Children at the University of Toronto, who spoke about the interaction between *Sal4* and *Tbx5*. As *Tbx5* heterozygous mice have decreased expression of *Sal4* yet a *Sal4* gene trap mouse shows normal expression of *Tbx5* Benoit concluded that *sal4* is acting downstream of *Tbx5*. He also showed that these proteins physically interact. Moving on from *Tbx5,* Miguel Torres from the Department of Immunology and Oncology in Madrid, presented a genetic approach for producing somatic clones in the mouse embryo to provide information regarding lineage specification and compartmentalisation as the limb develops. He showed there are no lineage restriction boundaries along the proximal distal axis however clones did segregate between either dorsal or ventral limb compartments. This session was concluded by a talk from Juan Jose Sanz-Ezquerro also from the Department of Immunology and Oncology in Madrid, who spoke about a gene identified in the apical ectodermal ridge called *Dril2*. This gene belongs to the ARID family of transcription factors and is a homologue of the *D.melanogaster* gene *dead ringer*.

Among the contributions in the session on limb patterning was a talk by Susanna Pascoal from the Life and Health Sciences Research Institute at the University of Minho, Portugal who considered the fourth dimension in embryonic development. It has been known for some time that the presomitic mesoderm develops into somites at regular intervals controlled by a molecular clock. Susanna has analysed the expression of one of these clock molecules in the limb, *Hairy2* and found that its expression oscillates every 6 hours in the distal mesenchyme of the limb bud. Two oscillations of *Hairy2* correspond to the time it takes for one autopod skeletal element to be formed. She therefore proposes that the molecular clock is not an exclusive property of the presomitic mesoderm and may be a more widespread mechanism used during development. Susan Mackem from the National Cancer Institute in Maryland, USA presented work re-evaluating how Shh specifies digit identity. The classical morphogen gradient model predicts that high levels of Shh in the posterior give rise to a posterior digit 5 while absence of Shh in the anterior, results in digit 1 identity. However using a Cre inducible transgenic mouse Susan has shown that knocking out *Shh* at earlier and earlier time points, the first digit to be lost is digit 3 followed by 5 then 2 then 4. This is the exact reverse order in which the digit condensations are formed. Therefore Susan suggested that Shh signalling is required to specify digit identity only early and transiently, possibly acting more as a trigger than morphogen, and later may act as a cell survival signal allowing cell division to provide adequate cell mass for the digit condensations to form.

"Shh signalling [may be] required to specify digit identity only early and transiently, possibly acting more as a trigger than morphogen"

Edwina McGlinn from Harvard Medical School gave a novel insight into the regulation of *Shh* in the limb. She showed work that identified a new signalling centre located on the dorsal-ventral ectoderm border proximal to the AER that serves to restrict *Shh* expression to the posterior margin of the limb and grafts of this signalling centre to the middle of the dorsal ectoderm induced ectopic *Shh* and *Tbx2*. She also analysed the function of two Ets family transcription factors ETV4 and ETV5, which are expressed in the distal mesenchyme of the limb bud. Repressing these two transcription factors resulted in polydactyly due to ectopic *Shh* expression in the anterior distal limb bud indicating that these transcription factors are important in suppressing *Shh* expression in the anterior of the limb bud. Possibly the most enthusiastic and helpful delegate was Takayuki Suzuki who works in John Fallon's lab at the University of Wisconsin. He was extremely proud to be back in his home country and wanted everyone to enjoy his or her time at the meeting as much as possible. He presented some very nice work on interdigital signals and digit identity. He proposed that it is the distal interdigital region adjacent to the newly forming digit primordium that acts as a signalling centre downstream of *Shh* through *BMP* signalling to confer digit identity. High *BMP* signalling targeted to the phalanx-forming region, which is comprised of vascularised mesenchyme distal to the condensing cartilage, results in posterior digit identity and low *BMP* signalling gives rise to anterior digit identity. By transplanting only the distal interdigital signalling centre from a posterior region of the limb to a more anterior region, Taka has shown he can induce posterior digit identities. Likewise if he implants a noggin bead inhibiting BMP signalling into the distal interdigital signalling centre in the posterior of the limb, an anterior digit is made.

Another session focused on cis-regulatory elements and their role in regulation spatial expression of key limb patterning genes. Bob Hill from the MRC-Human genetics unit in Edinburgh showed that point mutations within the Shh long-range enhancer can cause polydactyly. This is due to mis-regulation of *Shh* by the enhancer causing ectopic expression in the anterior of the limb bud resulting in polydactyly. Depending on the position of the mutation, the outcome can be variable highlighting the impact that mutations in such regulatory regions have. Following this, Takanori Amano from the National Institute of Genetics in Japan also spoke on the *Shh* enhancer. He had performed a 3D-FISH analysis comparing the location of the *Shh* coding region and the enhancer sequence in the nucleus. Both signals were co-localised in the posterior of the limb bud where *Shh* is normally expressed. Takanori also showed that both signals are not co-localised in the middle region of the limb, however co-localisation was seen in the anterior of the limb, suggesting that cells in the anterior of the limb bud have competency to express *Shh*. Karl-Heinz Grzechik from the Philipps-University in Marburg, Germany, then spoke about the identification of cis-regulatory elements that control the expression of *Gli3*. Highly conserved regions were identified in the intronic regions of the gene and were tested for their ability to regulate luciferase in cell culture and drive expression of GFP in zebrafish embryos. Three were identified as enhancers and three as repressors. These were further analysed for their ability to regulate expression of lacZ in a transgenic mouse, and were shown to recapitulate *Gli3* expression pattern.

In a session entitled "Studies relevant to mouse limb", Jeffery Innis from the University if Michigan, addressed the question of how limbs are positioned in the embryo? He described a new mouse mutant called polypodia that exhibits ectopic ventral caudal limbs, associated with malformations in the pelvic girdle or due to duplications of the limb. Polypodia is X-linked dominant. The anomalies associated with this mouse are similar to those seen in mice treated with retinoic acid, with the Disorganization mutant and human patients with ectopic legs. Polypodia may have an affect during early formation of caudal structures.

The conference ended with sessions in limb evolution and regeneration. Mikiko Tanaka now head of her own lab at the Tokyo Institute of Technology talked about how the evolution of paired appendages arose. The earliest known Cambrian vertebrate fish have a single continuous fin along the side of the body and she proposed that this fin fold might have expressed *Tbx4/5*. Duplication of this single ancestral gene has given rise to *Tbx5* and *Tbx4* which are expressed exclusively in the anterior fin and posterior fin respectively of Lamprey and Dogfish which both have two pairs of fins. She suggested that studying the evolution of these genes in Lamprey and Dogfish will give an insight into how paired appendages have evolved. The talk from K. Sato from the Centre for Regenerative Biology and Medicine in Indianapolis on the regeneration-incompetent axolotl mutant short toes generated some lively discussion. This mutant is still capable of regenerating tail and spinal cord however it cannot regenerate limbs. Myosin heavy chain genes are not expressed in the short toes regenerating limb, and histological analysis shows loss of skeletal muscle in the limbs on this mutant. K. Sato concluded that skeletal muscle is required for regeneration.

1st Meeting of European Evolutionary Developmental Biology Society

Prague, August 2006

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In August 2006 the BSDB helped me attend the founding EED meeting in Prague through travel grant. After the hassle of leaving from a UK airport because of the water bottle terrorist scare it was nice to be met by the very helpful conference staff at Prague airport. We registered early on the 16th giving us time to wander through central Prague before the conference started the next day. Prague is an amazing city and it was a wonderful place to host a conference.

While searching through the abstract book I realised there were a number of big names all attending this conference and indeed before the plenary key note session there was an excited buzz in the air. The first talk lived up to this buzz with Günter Theissen (Friedrich Schiller University, Germany) providing an amazing seminar on the evolution of flowers. He gave an easily understood outline of the genetics of floral patterning, followed by a description of his research comparing genes from gymnosperms and angiosperms. He ended with an interesting if somewhat heretical (at least to traditional, gradualist evolutionary biologists) argument of early flower evolution. His proposal invoked homeosis, where a single sex, male cone was converted to a bisexual cone through a shift in expression of a single floral patterning gene. This was, he argues, the initial step which subsequently led to the evolution of angiosperm flowers.

Over the three days of the conference, I attended many talks jumping between sessions to try and catch the most interesting and relevant ones for me. One of the early highlights was the palaeontology session with some excellent talks reminding everyone about the importance of fossils. In addition to the palaeontology, I enjoyed the talk by Yoshiyuki Yamamoto (UCL, UK) on cavefish eyes. He conducted some lens transplant experiments (between blind and sighted fish) confirming the lens is an organiser of fish eyes and made the conclusion that cavefish lose their eyes as a trade-off for having larger jaws. Ariel Chipman (University Museum of Zoology, UK) suggested a likely solution to an old mystery of why centipedes always have an odd number of segments through his examination of Pair-rule genes. Rob Lanfear's (University of Sussex, UK) talk proposing the 3 gene ProtoHox cluster as the most likely scenario was interesting to me for its relevance to my own research as well as the heated discussion afterwards. Several people didn't agree with his model of how the genes are related to each other. His model of three ProtoHox genes also stood out in contrast with recent data from cnidarians suggesting they have two ParaHox genes and therefore predicting a two gene ProtoHox.

I attended the entire Homeobox session beginning with a couple of strong discussions on cnidarian Hox gene complements. There was also a novel talk from Michael Akam (University Museum of Zoology, UK) on gene conversion in insect *engrailed* genes. All insects have two engrailed-like genes and phylogenetic trees make it look as though there were many lineage specific duplications. Michael showed this to be because of gene conversion where the two genes sitting next to each in the genome undergo recombination preventing divergence from each other. A presentation of amphioxus Hox *in situs* after treatment with retinoic acid (RA) by Michael Schubert (ENS Lyon, France) was also a remarkable talk. He presented work suggesting RA does not affect gene expression in the amphioxus cerebral vesicle but it does affect the collinear expression of Hox genes. He also demonstrated a role for Hox1 mediating RA signalling in the nervous system. A couple of talks on the final day really stood out despite conference fatigue setting in. Hervé Philippe (University of Montreal, Canada) explained how his massive phylogenetic trees are achieved, and argued we need to use better models of sequence evolution and better taxon sampling. William Jeffery (University of Maryland, USA) discussed neural crest-like cells in ascidians. Using several genes as neural crest markers, he found neural crest cells in many urochordates and demonstrated the pigment cells of ascidians are formed from these neural crest-like cells. Julie Huxley-Jones (University of Manchester, UK) presented an excellent student talk on the evolution of extracellular matrix (ECM) proteins. By examining ECM genes in Ciona, she found ECM genes were preferentially retained after duplication in the vertebrate lineage and argued therefore that evolutionary biologists should be spending more time on these terminal genes as opposed to solely concentrating on transcription factors.

By the end of day three, everybody was pretty exhausted but really looking forward to the conference dinner. The farewell dinner was in a historic brewery (always a good place for a meal!). We enjoyed traditional Czech cuisine of dumplings and meat and were treated to an unusual musical accompaniment. I stayed behind in Prague for a couple of days to recuperate after a hectic but exciting conference. I hope the future EED conferences are able to live up to the standard set in Prague. Thank you again to the BSDB for helping me to get to the conference.

11th International Xenopus Meeting

Kazusa, Japan, September 2006

Tim Geach
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In September the international *Xenopus* community converged (please excuse the pun) on Tokyo for the biennial *Xenopus* conference, the first time in it's twenty-two year history that the meeting had been hosted in Japan. Held at Kazusa Academic Park in the Chiba prefecture just outside Tokyo, the location provided an atmosphere, to roughly quote the opening introduction of organiser Makato Asashima, "for good eating, good drinking, good conversation and good science".

The conference kicked off with a satellite meeting entitled "Xenomics", a series of talks chaired by Richard Harland and Rob Grainger, on the developing techniques to turn *Xenopus* into a "genetic organism" for the genomic age of research. Focused on the more genetically tractable *Xenopus tropicalis*, the delegates heard of a variety of new screens and techniques to create *Xenopus* mutant lines similar to the highly successful zebrafish screens of the 1990's. Of specific interest to the UK community, Matt Guille announced that funding had been received for a UK *Xenopus* stock centre to house not only wild type frogs, but also many of the transgeneic reporter and mutant animal lines that were described in the following "Xenomic" talks. In addition Jeff Bowes, who together with Peter Vize, unveiled the long awaited update to the community web-based resource Xenbase (www.xenbase.org) and who were on hand throughout the remainder of the meeting to demonstrate the new features of the website.

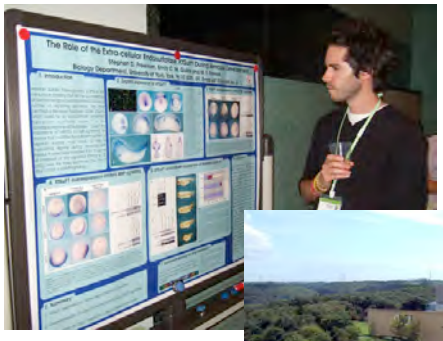
The *Xenopus* meeting proper opened with an introduction and welcome by Makato Asashima before handing over to Igor Dawid who entertainingly introduced the two plenary speakers, Chris Wylie from the Cincinatti Children's Hospital and Jim Smith of the Gurdon Institute. One of the main topics of Jim Smith's talk was the use of antisense morpholino oligonucleotides in both large-scale screens and their reliability. As a technology that has been used increasingly more over the last few years his views on their use and the subsequent discussion was particularly informative for all involved.

The following three and a half days included over eighty talks ranging from the classic "signal transduction" to "organogenesis and remodelling" and two poster sessions giving everyone the opportunity to discuss the talks and view further work from different labs.

For me Caroline Hill's talk on Smad translocation and shuttling from cytoplasm to nucleus during nodal signalling was a highlight. Using a Smad2-GFP fusion, which is activated using the laser of a 2-photon confocal microscope, her group are able to visualise Smad2 translocation from the cytoplasm to nucleus or vice versa. This method has highlighted the speed with which Smads are able to shuttle between the two regions of the cell and has demonstrated the need for an intact microtubule network in order to do so. More specifically it was shown that inhibiting the ATPase activity of kinesin blocks the translocation and the resulting phenotype in embryos is reminiscent of Nodal inhibition giving strong evidence for a kinesin-mediated transport mechanism for Smad2 during signalling.

John Wallingford's talk on cell division mechanisms during neural tube closure was also of note. Using time-lapse confocal microscopy his group have demonstrated modifications to cell division in terms of both extended anaphase and polarisation of cell divisions in the closing neural tube as opposed to epidermal cells. These differences require Cdc42 and modifications to the spindle orientation occur very rapidly in the order of about 60 seconds for a ninety degree rotation. His talk further demonstrated the versatility of *Xenopus* by highlighting it's potential for using cell biology techniques as opposed to the classic cut and paste of traditional embryology. It was either this or John's wife instant messaging him whilst on the podium that made it one of my highlights!

John Gurdon closed proceedings on the Saturday by thanking the main organisers, Makato Asashima, Masanori Taira and Naoto Ueno, whom he had encouraged to hold the meeting in Japan, for such a successful, stimulating and enjoyable conference before announcing Germany to be the location of the 12th International *Xenopus* conference in 2008.



International Society for Developmental Neuroscience, 2006

Banff, Canada 2006

Natasha Tian
Genes and Development Group
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The International Society for Developmental Neuroscience (ISDN) meeting in Banff, Canada kicked off with an interesting plenary talk entitled 'Deconstructing smell' by 2004 Nobel-prize-winner Dr Linda Buck. Dr Buck explained how approximately 1000 odorant receptors in the nose are used combinatorially to encode and discriminate between different odors. Her lab has recently found evidence to support a model in which cortical neurons act as coincidence detectors and require combinatorial odorant receptor inputs for their activation.

Throughout the conference, there were talks on synapse formation, neural crest and PNS development, the genetics of autism, adult neurogenesis, stem cells, signaling, axon pathfinding, neuronal networks, neural plasticity and cell fate decisions. The plenary lectures ranged from sensory networks in *C. elegans* to synapse formation given by a range of speakers from the USA to Japan

The highlight of the conference for me was Dr Marc Tessier-Lavigne's talk on the molecules determining axon guidance. He led us through his work into unraveling the mechanisms underlying accurate long-range navigation by commissural axons. Many different types of attractants, repellents, morphogens, branching and growth factors regulate axon growth in the developing brain and these molecules can change roles, such as switching from a repellent to an attractant in different spatial or temporal environments. Dr Tessier-Lavigne showed how long-range axon guidance is possible by presenting axons with several intermediate targets between the 'start' and 'finish', dividing up a long journey into shorter segments. Axons are attracted to these intermediate points but then repelled once they pass these targets, allowing the axon to move on. For instance, commissural axons navigating from the dorsal spinal cord ventrally are attracted to netrin-1 in the floor plate. Once at the floor plate, the repellent slit2 at the ventral midline silences the attraction to netrin-1 by inhibiting the netrin receptor 'DCC'. Therefore, it is only after axons reach the ventral midline that they develop responsiveness to slit. At the end of his talk, Dr Tessier-Lavigne presented interesting preliminary data suggesting a role for axon guidance molecules in regulating angiogenesis with implications for cancer treatment. Many axon guidance molecules, such as the neuropilins, influence 'tip cells' that guide blood vessels and are similar to a nerve axon's growth cone. Neuropilins are receptors for vascular endothelial growth factors (VEGFs), of which alpha-VEGF is a key regulator of tumour angiogenesis, which aids tumour growth and metastasis. Dr Tessier-Lavigne speculated that understanding neuropilins and their influence on tip cells may help to block angiogenesis.

The poster sessions were also informative, although more time should have been allocated for these, as there was so much research to digest. I had useful, positive feedback for my poster and enjoyed speaking with the other conference participants during the session.

Of course we scientists work and play hard, so after the poster sessions, we had time for a spot of hiking, wildlife-spotting (but no bears sadly) and souvenir-hunting in the charming town of Banff. On the last night, the conference organizers laid on a massive barbecue in a huge donut-shaped building, complete with a bonfire, guitar-strumming cowboys and line-dancing and most importantly a free bar.

In summary, the conference was a great success - highly informative and set in a beautiful location in the heart of the Canadian Rockies. I would like to thank BSDB and Brain for awarding me travel grants to attend this fantastic conference.

Biological Physics of the Developing Embryo

Gabor Forgacs and Stuart A. Newman
Cambridge University Press, 2005
ISBN: 0521783372

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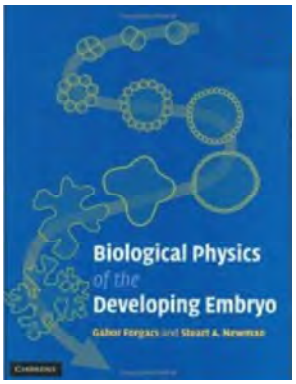

"While it is undeniable that genetics plays a central organisational role during development, the fact cannot be escaped that living systems are equally subject to the laws of physics"

In the quest to understand the mechanisms that underlie developmental processes, much attention has been focused on the contribution of the regulation of gene expression. While it is undeniable that genetics plays a central organisational role during development, the fact cannot be escaped that living systems are equally subject to the laws of physics as any physical system, as illustrated beautifully by D'Arcy Thompson in his classic work *On Growth and Form* (Thompson, 1917).

In some cases, "physical" considerations can be seen as predominantly providing general constraints on genetically specified mechanisms. For example, the limited diffusibility of morphogens in cellular tissues imposes an upper limit on the size of domain that can be patterned by a simple diffusion gradient established by a localised source (Crick, 1970). However, living systems constitute a rather special class of physical systems, due to the fact that they maintain themselves in highly organised states that are far from thermodynamic equilibrium. It has long been appreciated that physical systems far from equilibrium often posses spectacular capacities to generate complex spatiotemporal order from random conditions (Nicolis & Prigogine, 1977). Indeed, many non-living systems exhibit spontaneous patterning that is strikingly reminiscent of that seen in developing embryos (Turing, 1952; Ball, 2001). It is therefore essential when attempting to discover the fundamental logic of developmental processes to consider the extent and nature of the role played by physics.

There is no shortage of textbooks devoted to developmental biology, but it is remarkably rare to find any substantial treatment of physical considerations. In producing an excellent guide to the physics of developing embryos, Forgacs and Newman have therefore done the developmental biology community a great service. After a brief introduction to some relevant basic physical mechanisms — diffusion, osmosis and viscoelasticity — the reader is taken on a tour of key morphogenetic events such as the formation of compartments and lumens, gastrulation and neurulation, and mesenchymal condensation. In these events that are so important in shaping the embryo, the central role played by physical forces is particularly clear and a little physics goes a long way. The emphasis throughout is on the developmental processes, with physics being introduced as and when necessary.

An interesting feature of the book is the inclusion of a substantial amount of material on models of genetic/biochemical networks and pattern formation. Topics covered include models for oscillatory cell states, such as those involved in the cell cycle and somitogenesis, gradient formation, lateral inhibition, and cellular calcium waves following fertilisation. These models are posed in the mathematical formalism of dynamical systems, and a brief clear introduction is provided that allows some of the main points of interest to be described.

An appealing feature of both these chapters and those on morphogenesis is that the authors have chosen a selection of recent models that provide clear illustrations of physical effects, rather than opting for some of the more well developed "classic" models. Many of these models are currently being refined and elaborated, and so the descriptions provided here can be used by the interested reader as an entrée into the current research literature. This fact could prove invaluable if the book is to be used as a textbook for an advanced undergraduate or postgraduate course.

The book concludes with a chapter that explores the links between physical and genetic approaches to development, by considering developmental mechanisms in an evolutionary context. Recent theoretical studies of genetic networks are described that provide new quantitative insight into traditional evo-devo concepts such as canalization (Waddington, 1942). This material suggests an overall scheme of how the relative importance of physical and genetic factors can change during evolution. While these studies are quite preliminary, they provide an important broader perspective in which to consider the preceding material in the book.

Presenting models of complex biological systems to a mixed audience involves a delicate balancing act between accessibility and over-simplification. Thanks partly to excellent schematic illustrations, and in large part to the clarity of presentation, the book achieves this balance. Importantly, the authors avoid trivialising the biology and provide a very extensive and up to date bibliography (a particularly strong point for readers coming from a non-developmental biology background). Some equations are unavoidable, but the authors have taken care to ensure that the logical flow of the text can generally be followed by skimming over the equations. The mathematics required is fairly elementary, and its inclusion should not seriously discourage anybody from reading this book. Each chapter is fairly well self-contained, making it possible to dip into the book to explore particular areas of interest.

The lack of depth in the mathematics means that this is not a book from which to learn the practicalities of constructing quantitative models of development. But this is quite appropriate, as there are many excellent sources from which to learn the necessary mathematical techniques. As the authors state in their introduction: "What will be required of the scientist of tomorrow is the ability to speak the language of other disciplines. The present book attempts to help the reader to become at least bilingual." Not only does this book have the potential to achieve that, but by highlighting the additional insight that can be gained into familiar developmental events by consideration of physics it also provides the necessary motivation to do so.

"The mathematics required is fairly elementary, and its inclusion should not seriously discourage anybody from reading this book."

Ball, P. (2001). *The Self-Made Tapestry: Pattern Formation in Nature*. Oxford University Press.

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Turing, A. (1952). The chemical basis of morphogenesis. *Phil. Trans. Roy. Soc. London B* **237**, 37–72.

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Reviewing a book for the BSDB

Suggestions for future book reviews are always welcome. If you know a book you think should be reviewed, please contact the Editor. Reviewers receive a free copy of the book for their trouble.

Here are some possibilities:

From CUP

Principles and Techniques of Biochemistry and Molecular Biology, 6th edition (Hardback)
Edited by Keith Wilson, John Walker
New, fully updated edition of bestselling textbook, expanded to include techniques from across the biosciences.
http://www.cambridge.org/0521828899

Key Experiments in Practical Developmental Biology (Hardback)
Edited by Manuel Marì-Beffa, Jennifer Knight
This manual presents 27 laboratory exercises for student practical classes in developmental biology.
http://www.cambridge.org/0521833159

RNA Interference Technology: From Basic Science to Drug Development (Hardback)
Edited by Krishnarao Appasani
Cutting-edge overview of RNA interference (RNAi) technology, covering both fundamental science and applications.
http://www.cambridge.org/0521836778

From Humana Press

MicroRNA Protocols
Ying
1-588-29-581-8

Epidermal Growth Factor
Patel & Bertics,
1-588-29421-8

DNA Repair Protocols. Mammalian Systems. 2nd ed.
Daryl S. Henderson (ed)
1-58829-513-3/973-7

Differential Display Methods and Protocols 2nd ed.
Peng Liang, Jonathan Meade and Arthur Pardee (eds)
1-58829-338-6

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Ralph Greenspan
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The Condensed Protocols *From Molecular Cloning: A Laboratory Manual*
This manual is a single-volume adaptation of the three-volume third edition of *Molecular Cloning: A Laboratory Manual.*

Won for All: How the *Drosophila* Genome Was Sequenced
Michael Ashburner

The Strongest Boy in the World: How Genetic Information is Reshaping Our Lives
Philip R. Reilly

The main function of the BSDB Committee is to organise our meetings, from deciding on appropriate topics to arranging organisers and venues. If you have any ideas on topics for a good meeting, or on a good venue, don't hesitate to convey them to Nancy Papalopulu (or another committee member). The officers of the Society will be happy to answer any questions relating to their specific subjects.

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Further riddles from Hypogaeus

1. Cell ready to go: softly within heavenly body, mixing ten (9)

2. Nervous crockery? (6,5)

3. Organism takes shape after chaotic miles (5,5)

4. Initially played, the (French) cipher makes sense (7)

5. Insect (female) is very attached to flower (6)

6. Public broadcasting service is initially used to float tissues (3)

7. One hundred over a small error flattens the specimen (5,4)

Answers to previous riddles:

Left-right asymmetry; invertebrate, tunicate, *Xenopus*, siRNA, blastula, wolverine, *knotted*, fibroblast, evo-devo

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