EMBL &cetera

37

February 2007

Newsletter of the European Molecular Biology Laboratory

"We want to find the best people to take us in new directions"

DG Iain Mattaj's first 18 months in office have been devoted to ensuring continued funding from EMBL's 19 member states. In approving the new EMBL Programme and Indicative Scheme in November, Council agreed to a budget increase of nearly a third by the end of the period 2007-2011. In an interview, Iain talks about the new scientific directions EMBL will be taking, what changes we can expect to see at each site and how the additional resources will be put to the best use.

page 2

EMBL Hamburg tipped for the top

On 1 February, it was officially announced to the press that the BMBF will provide funding of €8.8million for EMBL Hamburg to build and operate an integrated infrastructure for life science applications using synchrotron radiation, EMBL@PETRA-III, on the new high-energy PETRA-III storage ring at the German Synchrotron Research Centre (DESY). A team headed by new Group Leader Thomas Schneider will be in charge of building and operating three beamlines which, when completed in 2010, will provide excellent research services to structural biologists from all over the world. page 3

Liliana's forgetful mice hit world headlines

EMBL research hit the popular press again recently, with Monterotondo's Liliana Minichiello's *Learning and Memory* paper making the headlines in the *New Scientist*, *La Repubblica*, *La Stampa* and Italy's Sky TV. Liliana and Agnès Gruart's group from the Universidad Pablo de Olavide in Seville, Spain investigated the molecular basis of memory in living mice, identifying that the receptor molecule TrkB is crucially involved in learning and singling out the signalling pathway through which it affects memory.

page 3

A passionate promoter of science

About most things, Lewis Wolpert is not backward in saying how he feels. The distinguished broadcaster and developmental biology professor from University College London, who visited EMBL to give a Science and Society lecture, "The Evolution of Causal Beliefs" on 24 January, is certainly opinionated, but this only served to make his talk even more interesting and entertaining. Author of the recent bestseller *Six Impossible Things Before Breakfast – The Evolutionary Origins of Belief*, Professor Wolpert is interested in the effective and straightforward communication of science (he was Chairman of the UK's Committee for the Public Understanding of Science), and as well as authoring several core science textbooks, he has gained a fanbase of non-scientific readers too. In an interview, he talks about why he was compelled to examine the origins of belief, and how science could be made more accessible and, therefore, more 'believable'.

page 6

What's it all about?

Every year EMBL Heidelberg gets to sample the Scots' idea of a good time, with a full-blown Burns Supper and all the trimmings. What's the history behind this ritualistic tribute? Find out for yourself inside.

page 4

4 Big in Japan: EMBL strengthens links with east

5 First deadlines loom as EU launches FP7

5 Chemistry meets cell biology and gets results

"We want to find the best people to take us in new scientific directions"

DG Iain Mattaj's first 18 months in office have been devoted to ensuring continued funding from EMBL's 19 member states. In approving the new EMBL Programme and Indicative Scheme in November, Council agreed to a budget increase of nearly a third by the end of the period 2007-2011. Here, Iain talks about the plans for the coming years.

Photo: Marietta Schupp

What will be EMBL's scientific focus in the future?

We will build on our strength in molecular biology to move into systems biology. This will require the addition of new scientific disciplines and an interdisciplinary approach, for which we will need to hire more physicists, mathematicians, chemists and IT people. EMBL is in a very good position to increase its activity in this growing field, because of our strong tradition of collaboration and interdisciplinarity. Chemical biology is one example of a new area that we started a few years ago and will now be able to expand further.

Monterotondo will be built up, with two new groups and an expansion of resources; a stronger emphasis on mouse biology involving both Monterotondo and Heidelberg is essential, as the mouse is quite clearly the best genetic model for human disease. Many basic research projects now have links to human health, and we'll see an even greater move of molecular biology towards medicine, with stronger links between EMBL and clinical research centres.

EMBL is an important provider of research infrastructure and services. How will these develop?

The growth of data production in many fields of molecular life sciences is exponential, and the EBI's major mission in Europe is to continue to develop the tools and methods by which this avalanche of data can be collected and presented most efficiently to researchers. We're grateful that the member states have agreed to provide a larger proportion of the necessary EBI funding in the future but we will also need to achieve some increase in external funding to realise the ambitious plans for the EBI.

Structural biology services provided by Grenoble and Hamburg remain the second main area of service provision at EMBL. Hamburg will be able to regain a leading role as a provider of top-quality synchrotron radiation in Europe to solve biomolecular structures through the construction of new beamlines at PETRA3. In Grenoble, we will continue to build upon the integrated approach to high-throughput technology for structural studies already addressed by the PSB.

Additional funding for the Hamburg project from Germany and the EBI building expansion from the UK, in additon to the funding for the Indicative Scheme, is also a reflection the very strong level of support for EMBL from the member states at present.

EMBL is nothing without its people. What would you expect from EMBL staff?

I'm relying on everyone to continue to carry out their tasks with dedication and keep the EMBL spirit alive. There will be an unusually big change in the composition of EMBL, particularly in Heidelberg, as several Heads of Units and Senior Scientists move on. When major changes have occurred at EMBL in the past, we have used them as opportunities to hire the best people who are willing to take us in new scientific directions. In the hiring process we will emphasise inclusiveness, and actively solicitation of applications from excellent female scientists for EMBL positions has to become common practice.

The EMBL Centres, which were set up to increase inter-unit collaboration, have had great success in bringing people with common interests together from many parts of EMBL. We will continue to support networking and training within the Centres and will make funding available for pre- and postdoctoral fellows that work on inter-unit projects.

The ATC is one of the major projects to be undertaken at EMBL in the next few years. How will people benefit from this?

The ATC will become one of the leading centres in life science training in Europe. EICAT will be responsible for continuing our long-standing tradition of organising excellent courses, conferences and workshops throughout EMBL.

Internal scientific and vocational training will be made available not only to pre- and postdoctoral fellows but to all EMBL staff at all sites.

What other changes are going to be happening?

Another major construction project is the much-needed refurbishment of the main laboratory in Heidelberg. We are now using part of the budget increase to repay the loan used to finance phase one. The refurbishment will be completed over the next years.

The EMBL administration will continue to improve its services by introducing a new electronic personnel management system over the next years. The SAP HR system will be suitable to address changing requirements in accounting and personnel management practice. This should make life easier for everyone in EMBL.

I am also delighted that the negotiations for the Long-term Care Insurance have been successful so that staff can join the scheme without a medical exam. This means that everyone can participate, and retain LTCI, when they leave EMBL.

What's your goal for the next five years?

I want to successfully lead EMBL through a transition phase and to complete the several major projects we've talked about. I'd also like to see many of the new EU countries join EMBL. Many of our best PhD students have come from these countries, often with a background in physics, mathematics or IT. In return EMBL can provide an infrastructure through which their scientific communities can interact with others and a place for some of the best young talents to develop.

It is important that we not only show excellent performance in our research, training and service activities but that we continue to engage in dialogue with the general public. This includes contacts with the media and interactions with non-scientists such as teachers and school students.

It's also important to pursue the possibility of bringing in associate member states from outside Europe. It would be mutually beneficial to have more EMBL-mediated European interaction with countries that traditionally look to the US, such as Asia and Australia.

I'd like to thank everyone who has helped to make EMBL so successful. I'm confident that we will be able to keep up the pace and continue to be the leading laboratory for molecular biology research in Europe.

EMBL Hamburg tipped for the top

EMBL Hamburg's expertise in structural biology is to combine with the very latest cutting-edge technology to provide second-to-none research services to structural biologists from all over the world – ensuring the Outstation's future as a forerunner in European life sciences research.

On 1 February, it was officially announced to the press that the German Federal Ministry for Education and Research (BMBF) will provide funding of €8.8million for EMBL@PETRA-III, an Integrated Centre for Structural Biology on the new high-energy PETRA-III storage ring at the German Synchrotron Research Centre (DESY), one of the world's most powerful synchrotron rings.

EMBL Hamburg will build an integrated infrastructure for life science applications using synchrotron radiation at the ring, which is operated by the Outstation's campus partner DESY. A team headed by new Group Leader Thomas Schneider will be in charge of building and operating three beamlines, two of which will be dedicated to macromolecular X-ray crystallography (allowing structure determination from extremely small crystals) and one to small angle X-ray scattering applications (SAXS, the analysis of overall molecular shapes and dynamic processes of proteins in solution). The new centre will comprise a complete pipeline for high-throughput structural investigations of molecules under one roof, with facilities for sample preparation, data collection and processing.

This new addition to EMBL Hamburg's existing facilities will start operating in 2010. Access will be prioritised based on scientific criteria.

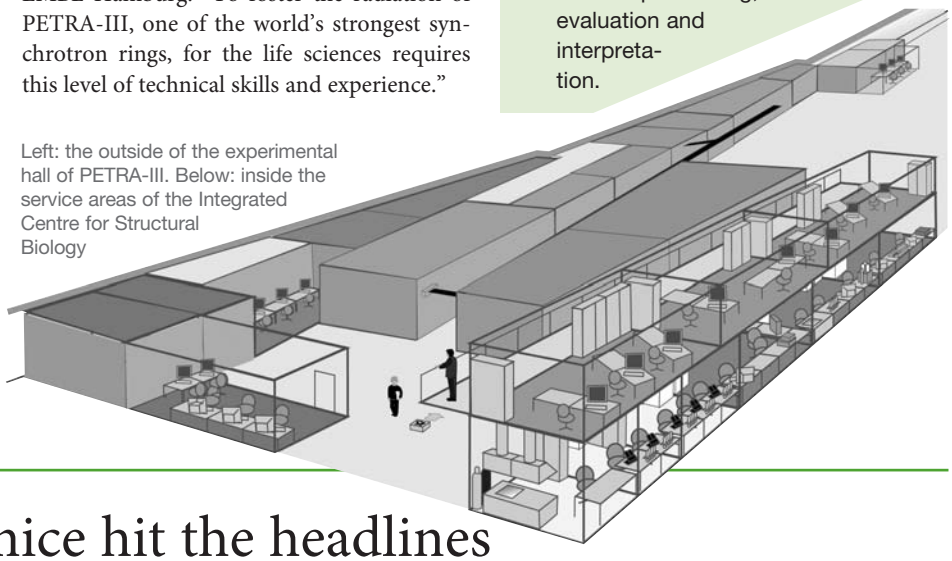
"This facility will allow us to go beyond current physical limitations and to tackle problems that were out of reach in the past," says Thomas Schneider. "It will strengthen Europe's role as a key player in the life sciences, and raise the profile of Hamburg in the European research landscape."

"EMBL Hamburg has developed great expertise in structural biology research for over 30 years, coordinating several big EU projects," says Matthias Wilmanns, Head of EMBL Hamburg. "To foster the radiation of PETRA-III, one of the world's strongest synchrotron rings, for the life sciences requires this level of technical skills and experience."

Beamlines in a nutshell

The new facility at EMBL@PETRA-III will feature the following state-of-the-art technology:

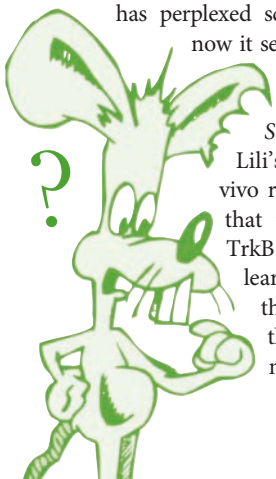
- Highly brilliant, parallel and focussed synchrotron radiation beams allowing X-ray diffraction experiments on a large variety of crystal sizes;
- Broad energy range tuneability, variable energy band pass and high beam stability for applications of a broad spectrum of experimental phasing methods;
- Combined spectroscopy and diffraction methods, allowing exploration of the dynamics of biological processes;
- State-of-the-art automation in sample handling and data acquisition, including multi-axes goniometry and ancillary equipment geared for challenging applications;
- An infrastructure for automated data processing, evaluation and interpretation.



Left: the outside of the experimental hall of PETRA-III. Below: inside the service areas of the Integrated Centre for Structural Biology

Liliana's forgetful mice hit the headlines

EMBL research hit the popular press again recently, with Monterotondo's Liliana Minichiello's *Learning and Memory* paper making the headlines in the *New Scientist*, *La Repubblica*, *La Stampa* and Italy's Sky TV.



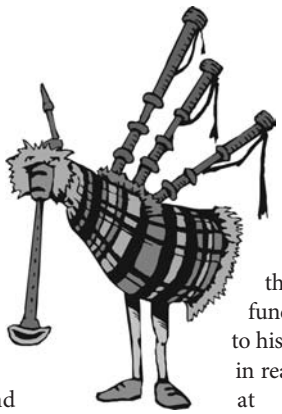
"How are memories formed? The question has perplexed scientists for years, but now it seems we're a step closer to solving it", heralds 13 January's *New Scientist*, referring to Lili's groundbreaking in vivo results, which identified that the receptor molecule TrkB is crucially involved in learning and singled out the signalling pathway through which it affects memory.

In long-term potentiation (LTP), signals between brain cells are stronger the more often they experience the same stimulus, such as during learning. They can distinguish familiar information from news by "remembering" an event as an unusually strong and long-lasting signal; however, "it's difficult to study a dynamic process like LTP in the test tube," says Liliana. "To assess if the molecular mechanisms that generate it also underpin memory formation, you need to study a living animal while it is learning."

So, for "Mutation at the TrkB PLCγ-docking site affects hippocampal LTP and associative learning in mice", published in January, Liliana and the group of Agnès Gruart from the Universidad Pablo de Olavide in Seville, Spain investigated the molecular basis of memory in living mice. They have used a sophisticated mouse model, generated by Liliana, with a defective version of TrkB, which is found on the surface of cells in the hippocampus and translates incoming signals into cellular responses. Mice with defective TrkB, which is incapable of activating a signalling pathway involving the protein PLCγ, were no longer able to learn, and the LTP generated by normal hippocampal cells in response to familiar stimuli was missing.

In the future Liliana aims to gain an even better understanding of TrkB and its role in learning and memory. The lab's research might give new insight into human memory, too, as underlying molecular pathways are likely to be conserved between species; or, as the *New Scientist* puts it, "this could pave the way for drugs to combat Alzheimer's disease, or to enhance memory capability generally".

What *is* a haggis, anyway?



Every year EMBL Heidelberg gets to sample the Scots' unique idea of a good time, with a full-blown Burns Supper and all the trimmings. But what's it actually all about? Who was Burns, what exactly are we eating, what's that infernal racket, and why on *earth* is that man wearing a nightshirt?

"Auld Scotland wants nae skinking ware / That jaups in luggies: / But, if ye wish her grateful prayer, / Gie her a Haggis!". Robert Burns might have overestimated the magic effect of the traditional Scottish dish, but haggis' miraculous reputation lives on. The otherwise reasonable Scots are still convinced that the mixture of sheep's offal, onion, oatmeal and spices – boiled for several aeons inside a sheep's stomach – makes you fit to move mountains.

One thing's for sure: it makes you fit to dance traditional Scottish Ceilidh, as the Burns' Night guests once again proved on the last Saturday in January. Oh, and for anyone still wondering, that stuff you had with the haggis was the traditional side helping of "bashed neeps" (turnips) and "champit tatties" (mashed potatoes), washed down with a wee drop of the other national product, whisky.

It's all in celebration of one man. Outside Scotland, Robert "Rabbie" Burns' poetry might be an insider tip. But who doesn't know classics such as Salinger's *The Catcher in the Rye* or Steinbeck's *Of Mice and Men*, both titles inspired by Burns' lines? The 1759-born poet is, next to Walter Scott, the most renowned Scottish humanist and lyricist. Most of Burns' poems and stories were composed in Scottish dialect, which was of particular importance at the end of the 18th century, a time when the English language became more and more influential and when Scotland, after the merge of the Parliaments, was in danger of becoming just another region of Great Britain.

Burns' first collection, *Poems Chiefly in the Scottish Dialect*, received much acclaim among his compatriots, but this was nothing compared to the popularity he has reached since. Upon his untimely death at the age of 37, more than ten thousand people attended his funeral. Rabbie, who according to his tutor "made rapid progress in reading and was just tolerable at writing", had become Scotland's cultural icon.

The annual tribute was started by close friends of Burns a few years after his death in 1796. The format of the ritual has remained unchanged, and begins when the chairman invites the company to receive the haggis. A piper leads the chef who carries it on a silver platter and the chairman recites ""To a Haggis". Only then the guests are allowed to sample the "warm-reekin" pudding of all puddings.

The gastronomic affairs are accompanied by literary extras; in EMBL's case, one such task is traditionally assigned to its leader, Burns' compatriot Iain Mattaj who, dressed in a nightshirt and holding a candle, dramatically recites the first of Burns' poems to be published, "Holy Wullie's Prayer", a vigorous condemnation of hypocrisy in high places. To round off the proceedings, the company takes their partners on the dancefloor for a good old Scottish knees-up. If you didn't make it this year, now how can you resist? See you at the 2008 Burns Supper!

Big in Japan: EMBL strengthens links with east

The recent 30th anniversary of Japan's National Institute for Basic Biology (NIBB) also saw the end of the first full year of the leading institute's fruitful collaboration with EMBL.

The academic exchange agreement signed in 2005 aims to promote joint research activities, enable exchange visits for lectures, workshops, conferences and collaborative projects and visits and facilitate the trading of information and expertise.

Since its inception there have already been four joint symposia in developmental biology, light microscopy imaging, mouse biology and structural biology, and with the support of the Shimura award, many visitors and guest speakers have travelled to NIBB from EMBL, including Kota Miura (see right), Thomas Franz, Anne Ephrussi, Jochen Wittbrodt and Thorsten Henrich. In addition, technology that has been developed at EMBL has been transferred to a new core facility at the NIBB.

It's just one example of how EMBL's links with the far east are strengthening. The EBI's Nicolas Le Novère has recently been awarded a Japan Partnering Award by the BBSRC, which will fund a collaborative systems biology project and comprises four partners including EMBL SAC member Hiroaki Kitano.

Kota tries to remember how to speak Japanese at the NIBB

Photo: Yasuyo Mukohda

... and Kota's Christmas break is work, work, work

When Kota Miura went home to Japan for the holidays, he didn't get to relax entirely. His trip combined an invitation from the NIBB to present his work to his compatriots on 27 December – in Japanese, of course.

"I hadn't done a presentation in Japanese for several years, except for some seminars with friends," says Kota. "Many biology terms in English are used in the Japanese scientific community, but since I didn't know this, I translated them into funny Japanese words."

Kota, who's from EMBL Heidelberg's Centre for Molecular and Cellular Imaging, was impressed by the already strong relationship between EMBL and NIBB. "I saw several EMBL visitors' talks on the NIBB webpage and enjoyed watching people I know in a different place," he says. "In a relatively short time the agreement between the two institutes has led to many fruitful meetings, which is an great accomplishment, but I hope for further collaboration.

"If we look back in history, the relationship between the scientific communities in Europe and Japan used to be very tight. I think the effort between NIBB and EMBL could see a revival of this and could be the seed of a new trend in scientific progress."

First deadlines loom as EU launches FP7

EMBL's single most important source of grant funding, the EU, put out its first calls for applications under the new Seventh Framework Programme (FP7) just before Christmas. This means some of the deadlines are coming up in the next few months (see box, below).

FP7 is the handy name for the otherwise cumbersomely-monikered Seventh Framework Programme for Research and Technological Development, the EU's main instrument for funding research in Europe. Unlike previous programmes, which have covered five years, this Framework Programme will run for seven years, from 2007-2013.

Under the last Framework Programme, FP6, EMBL coordinated no less than 19 projects and participated in more than 70 others. These ranged from research-based ventures, such as ENFIN and 3D-Repertoire, to support actions such as the SET-Routes ambassadors programme and the series of symposia organised by the students of the EMBL International PhD Programme.

FP7 not only lasts longer than FP6, it also has a much larger budget. FP7 has €50.5 billion in comparison to FP6, which had €17.5 billion. Part of that, about €1 billion per year, will be solely allocated to basic research by the European Research Council (ERC), a new pan-European funding agency for frontier research. Early stage as well as fully established investigators in Europe will be able to compete for ERC grants, with scientific excellence as the main criterion for funding.

Both research projects and individual fellowships will be funded under FP7. If you'd like more information, check out the website at http://ec.europa.eu/ research/fp7.

FP7: because money doesn't grow on trees, unfortunately

• • • Deadlines coming up! • • • Deadlines coming up! • • • Deadlines coming up! • • •

Here are some of the recent FP7 calls that may be of interest to EMBL scientists.

- **EC Call for the Specific Programme "Cooperation":** Thematic Priority (TP)1 "Health". Deadline: April 19
- **EC Call for the Specific Programme "Ideas":** 100 ERC Starting Independent Research Grants. Support for a period of 5 years for independent researchers in the early stage of their career for the establishing and leading their first research team or programme. Deadline: April 25/Sept 17
- **EC Call for Specific Programme "Capacities".** Call for Research Infrastructures. Deadline: May 2
- **EC call for the Specific Programme "People", Marie Curie Actions (MC):** Several different Marie Curie individual fellowships and training networks with various deadlines are summarised at http://cordis.europa.eu/ fp7/dc.

If you're planning to apply, please contact either your local EU grants expert (Sylviane Troger (Grenoble), Pascale Beudin (Monterotondo), Margret Fischer (Hamburg) or Katherine Bellenie (EBI), or see Phil Irving or Geneviève Reinke in the Grants Office at EMBL Heidelberg.
See www.embl-heidelberg.de/LocalInfo/GrantsOffice/ for more details about upcoming deadlines and applications.

Chemistry meets cell biology and gets results

Outgoing Cell Biology and Biophysics Group Leader Philippe Bastiaens' parting gift to EMBL is a novel approach he has developed to understand how growth factor signalling is regulated, helping map the spatial organisation of biochemical activity inside cells.

Harnessing the expertise of Gene Expression's resident chemist Carsten Schultz, Philippe and his colleagues used chemical biological approaches to spatially resolve enzyme activity in an important cellular pathway, growth factor signalling, for the first time ever in living cells. This new approach showed that termination of growth-factor signalling by dephosphorylation of growth factor receptors is stronger close to the nucleus than near the membrane; in other words, regulation of a signal depends on its location in a cell. This brand new patented approach means that the dynamics of localisation and regulation of any enzymes can be studied in a living cell, something that can't be done *in vitro*.

Their paper, "Live-cell imaging of enzyme-substrate interaction reveals spatial regulation of PTP1B", which appeared in the 5 January edition of *Science*, is the latest breakthrough from a long-lasting interdisciplinary collaboration of Philippe and Carsten. Philippe was actually part of the committee set up to hire a chemist as a Group Leader for EMBL. In the present work the chemical synthesis of the sensor's acceptor part was essential. As the donor moiety was provided by molecular biology methods and the imaging procedure is state-of-the-art biophysics, the benefits of interdisciplinary collaborations within EMBL is exemplified.

Philippe has already taken up his new position as head of the Systemic Cell Biology at the Max Planck Institute of Molecular Physiology in Dortmund, but his presence will still be felt here at EMBL. He leaves behind a FLIM microscope for the use of groups at EMBL under the local supervision of a Staff Scientist, who will maintain the machine and its software in constant collaboration with Philippe.

He'll take away fond memories of EMBL and a few ideas, too. "I like the philosophy of the high turnover at EMBL. Its great for younger scientists, and the small group sizes actively encourages collaboration," he says. "EMBL's method of attracting the best students is exemplary, and the PhD Programme is something that could be be adopted elsewhere. It's given EMBL a unique density of intellectualism that I'll really miss."

science&society

A passionate promoter of science

An interview with Lewis Wolpert

About most things, Professor Lewis Wolpert is not backward in saying how he feels. "Psychoanalysis? A load of nonsense!" "A postmodernist? That's even worse than being agnostic! Oh, dear me, no!" "Telepathy... oh God, no..." "Memes? Pointless!" The distinguished broadcaster and developmental biology professor from University College London, who visited EMBL to give a Science and Society lecture, "The Evolution of Causal Beliefs" on 24 January, is certainly opinionated, but this only served to make his talk even more interesting and entertaining.

Author of the recent bestseller *Six Impossible Things Before Breakfast – The Evolutionary Origins of Belief*, Professor Wolpert is a leading development biologist with a life-long interest in the effective and straightforward communication of science (he was Chairman of the UK's Committee for the Public Understanding of Science). His most well-known book is *Malignant Sadness*, a study of depression, and he has authored several core science textbooks, including *The Triumph of the Embryo*. He has also gained a fanbase of non-scientific readers with his 1993 book *The Unnatural Nature of Science* and 1989's *A Passion for Science*.

His interest in belief, the subject of his EMBL lecture and latest book, stems from "wanting to know why my non-science friends had such difficulty understanding science and why there is a quite strong anti-science movement". In researching the book, he examined the "unnatural" or counter-intuitive nature of science, and found that absence of belief in scientific methods is related to belief in what he finds unbelievable, or things with no reliable evidence. As a result, the book explores what it is that determines what people believe about causal events, rather than moral or ethical beliefs.

"Things I find unbelievable – religion, memes, the existence of UFOs – they're all nevertheless sets of beliefs for some people, and if you can understand why people want or need to believe them, then that's fine. That's what we're interested in: *why* people believe, not whether what they believe is true," he says.

Despite the book being described as "singularly welcome to those of us who have suffered many dreary years having God's message stuffed down our throats by the religious self-righteous" (*The Observer*), Professor Wolpert doesn't take on the church-bashing stance that someone like Dawkins upholds. *Six Impossible Things Before Breakfast* concludes that humans alone have a unique ability to comprehend the concept of cause and effect. As Professor Wolpert puts it, "No animal, other than a human, could play golf!" This allows us to think about the world in abstract terms, design and use tools, hold beliefs and practice science, and drives us to find explanations for everything. Every culture has its set of beliefs about the cause of things, usually invoking gods who would be able to set events in motion.

"Invoking God to explain evolution doesn't help one iota, but it makes people feel better."

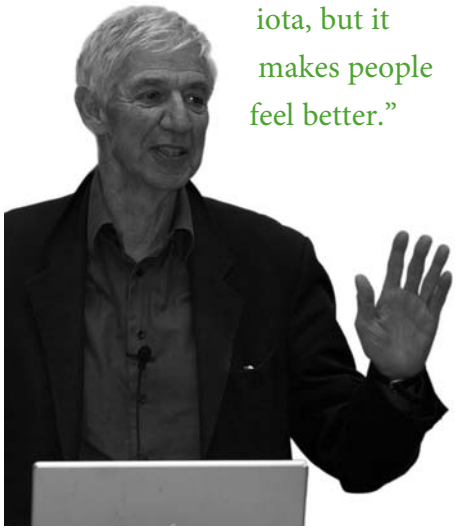


Photo: Marietta Schupp

"I'm not *against* religion," he explains. "Invoking God to explain evolution and the origin of life doesn't help one iota, but it makes people feel better. I'm only against religion when it starts to interfere with other things, like telling people they can't use contraception. Authority plays a big role in our beliefs. Nobody but the church ever went around saying a fertilized egg was a human being, and now people are starting to believe it."

He's currently working on a new book about the cell, aimed at the general public. As a proponent of the clear and transparent communication of science, he has a lot to say about how science is taught in schools. "In Britain, at least, they have the lunatic idea that children should be discussing the ethics of science. How can you discuss stem cells and cloning if you know nothing about developmental biology? It's mad beyond words. And the *philosophy* of science! It's junk. It's all yackety yackety nonsense, all of it! Oh, my goodness... it's simply terrible, absolute rubbish.

"What children should be taught is something about the processes of science… how discoveries were actually made, the history of things, rather than being presented with a *fait accompli* in a textbook. They should be taught about clinical trials, peer review, and what it's all about to be a scientist. That science is a group activity, where numerous scientists try to convince each other of their theories; if history were rerun, the discoveries would remain the same but the names would not. Great scientists are not really necessary; they just speed things up."

As he concludes in *Six Impossible Things Before Breakfast*, scientific beliefs are the most reliable we have about why things happen, so could they not form the basis of our belief system, rather than religion or mysticism? The hurdle, he feels, still remains: that scientific explanations are hard to understand. "What would be really helpful for children to know is that science goes against common sense. It's not common sense to think that the earth orbits the sun and not the other way around. Science is counter-intuitive, and children need to learn that. They need, in fact, to be taught that science is *jolly hard*!"

from the Staff Association

- The next Staff Association General Assembly will take place on 23 March in the large Operon, and will be preceded by a "Clubs Fair" from 12.30 in the foyer. Members of EMBL's social and sports clubs will be on hand to share information and sign up new recruits, and representatives from Gothaer Insurance (Long-term Care Insurance) and Swiss Life (Private Retirement Insurance) will also have a stand. Refreshments will be provided. At 16.00 the Theatre Club will be performing a short play in the Small Operon.
- Anyone signing up for Long-term Care Insurance before 31 March will not need a medical exam. See www.embl.de/staffonly/personnel/longtermcare.html for details.
- See www.embl-heidelberg.de/~staff/ for more information about upcoming events.

Catherine Floyd (right) takes over from Ann Thüringer as the SA's Administrative Officer

the EMBO corner

EMBO Young Investigators carry an influential recommendation. Selected by EMBO Members, they join a network of some of Europe's best young group leaders. The 2006 selection round saw 21 talented life scientists win the support of the prestigious programme.

The Young Investigator Programme smoothes the transition between setting up independently and establishing a reputation in the scientific community. The aim is to raise the profile of the select group and help them to attract new collaborations and funding.

"We offer a level of support and distinction that is hard to find at this stage in a scientist's career," explains Programme Manager Gerlind Wallon. "The young investigator title shows that EMBO is convinced of the quality of your research and that's an impressive credential."

www.embo.org/yip
2007 application deadline: April 1

François-Xavier Barre
Cell division in bacteria
CNRS Centre for Mol. Genetics, Gif-sur-Yvette, FR

Sigal Ben-Yehuda
DNA damage depair in sporulation
Hebrew University, Jerusalem, IL

Simon Boulton
DNA damage response in C. elegans
Cancer Research UK London Research Institute, South Mimms, UK

Dirk Bumann
Salmonella-*host interactions*
Hannover Medical School, DE

Jérôme Cavaille
Function of non-coding RNA
University of Toulouse, FR

Vincenzo Costanzo
DNA damage response in Xenopus laevis
Cancer Research UK London Research Institute, South Mimms, UK

François Fuks
DNA methylation in mammals
Free University of Brussels, BE

Johanna Ivaska
Integrin traffic and signalling in cancer
Turku Centre for Biotechnology, FI

Bruno Klaholz
Complexes in gene expression
Inst. of Genetics & Molecular & Cellular Biology (IGBMC), Strasbourg, FR

Jean-Christophe Marine
Key modifiers of p53
Flanders Interuniversity Institute for Biotechnology (VIB), Ghent, BE

Annette Oxenius
Host-pathogen interactions
Institute of Microbiology, ETH Zürich, CH

Philippe Pasero
Maintenance of genome integrity
CNRS Institute of Human Genetics, Montpellier, FR

Maria Rescigno
Dendritic cells in infection and cancer
European Institute of Oncology (IEO), Milan, IT

John Rouse
Regulators of genome stability
MRC Protein Phosphorylation Unit, Uni. Dundee, UK

Dirk Schübeler
Dynamics and propagation of epigenetic states
Friedrich Miescher Institute, Basel, CH

Luca Scorrano
Mitochondria-shaping proteins
Venetian Institute of Molecular Medicine, Padova, IT

Victor Sourjik
Bacterial chemotaxis
ZMBH, University of Heidelberg, DE

Irina Stancheva
Epigenetic silencing
Wellcome Trust Centre for Cell Biology, University of Edinburgh, UK

Jussi Taipale
Growth control and cancer
Biocentrum, University of Helsinki, FI

Miltos Tsiantis
Comparative leaf development
University of Oxford, UK

Antonella Viola
T-cell activation
Venetian Institute of Molecular Medicine, Padova, IT

"Hello, and thank you for registering for the first ever Online EMBL PhD Symposium..."

History was made on 4-8 December last year, when under the banner "Life Sciences – Shaping the Future", the Online EMBL PhD Symposium went live for the first time. Thirteen speakers from all over Europe and the United States contributed talks to four different sessions; Omics and Systems Biology, Neurobiology, Scientific Communication and Career Development.

While in a normal symposium the Operon would be filling up and a speaker introducing the first session, the Online Symposium simply went "live" for four days, and participants were invited to register via a browser to be able to take part in the proceedings immediately.

The main attractions were the presentations, which could be downloaded in audio, video and print format. In the Systems Biology session, DNA Sequencing pioneer Leroy Hood gave insight into his present work, and Stuart Kim reported how his group tries to understand the biology of ageing.

An interview with Nobel Prize winner Tim Hunt had been recorded for the Career Development session; it gave insights into his experiences as a young scientist, his driving forces and his present view on biological sciences.

During the four "live" days, registered participants had the possibility to comment on talks, to start discussions in chat rooms and even to talk with some of the speakers in a chatroom-style format. They could also provide material for a poster session where the choice of format was completely free, resulting in traditional posters alongside complete presentations. Most of the material can still be revisited on the site today.

Nowadays, the internet is a major tool to the scientific community; online-only journals like PLoS and live transmissions of meetings are the newest developments. To go online with scientific conferences has obvious advantages and of course, it's not the purpose to replace conventional meetings, but in parallel online symposia can help distribute knowledge more easily to anywhere in the world.

–Esther Lenherr

http://onlinesymposium.predocs.org/

Konrad Förstner (left), one of the masterminds behind the online symposium (the others were Philipp Gebhardt, Michal Karzynski, Vibor Laketa, Esther Lenherr, Evangelia Petsalaki and Daniel Zerbino) was the unseen force behind the scenes when it went live, chairing the discussions and making sure the system worked without a hitch. "We broke down the usual borders with this initiative," he says. "With normal symposia, there are barriers such as time restrictions and distances to travel, and of course a virtual space is much bigger than the Operon."

He hopes that as the idea takes off, people will be more willing to take online symposia just as seriously as real ones. "Tim Hunt's interview was done exclusively for it, but for the most part we got permission to use talks which had been presented at EMBL in the past," he explains. "As it was the first time, it was all very experimental. Other institutes do put their talks on the web, but this symposium offered the opportunity to get involved in live discussions and a question-and-answer session online, in which about 20 people took part, and a forum for comments after the talks.

"The feedback was positive. More than 300 people registered, and the many who responded afterwards praised the quality of the talks and said they would definitely get involved again."

News from the Alumni Association

Dear EMBLers,

We are proud to have officially cut the ribbon of the EMBL-USA Chapter: the first Local Chapter Meeting was held on 9 December in San Diego, prior to the opening of the annual American Society of Cell Biology (ASCB) meeting.

We had a good crowd for the lectures and dinner: Colin Stewart, Brian Storrie, Olivia Steele-Mortimer, Sigrid Reinsh, Roberto Dominguez, Martin Hetzer, Karsten Weis, Silvia Sauer, Marie Louise Bang, Gustavo Gutierrez, Genaro Pimenta, and Jaime Pascual; some "faithful Europeans" like Matthias Hentze, Andrea Merdes, Margarete Heck, Rune Kjeken also attended. After an introduction to the Alumni Association and how the USA Chapter can assist ex-EMBLers when they come to the US (by forming networks for collaborations, for example), Matthias Hentze pitched in with his colorful presentation, "What's new at EMBL? – Beyond a new double helix". He described the EMBL Programme for 2007-2011 and gave a preview of the development of the EMBL International Centre for Advanced Training (EICAT). Then Colin Stewart from the Laboratory of Cancer and Developmental Biology, NCI-FCRDC and Martin Hetzer from the Salk Institute gave scientific talks on "Functional architecture of the nucleus in development and disease" and "Dynamic organization of the cell nucleus", after which we enjoyed dinner.

It was notable that although we came from different countries, corresponded to different eras of EMBL, and even – for many of us – hadn't met each other before, the EMBL experience transcends boundaries, and proved an important bond. I would like to invite EMBLers to the 2nd EMBL-USA reunion, which will take place on 1 December 2007 in Washington DC (pre-ASCB meeting). Hoping to see you there...

Renata Stripecke

www.embl.org/aboutus/alumni/chapters/usa

Forthcoming local chapter meetings . . .

Ski Weekend! First Scandinavian Local Chapter Meeting
Open to all EMBL staff and alumni

8-10 March, Studenterhytta,
Nordmarka, Oslo, Norway

Number of participants: 25-56
First come, first served
To register, contact
embl-scandinavia@alumni.embl.org
with cc. to
oddmund.bakke@imbv.uio.no

First Greek Local Chapter Meeting

21-22 April
Dilofo, Ioannina

For more information, contact
Anastasia Politou:
apolitou@cc.uoi.gr

See www.embl.org/aboutus/alumni/chapters/ index.html for more information about chapter meetings.

Where are they now?

We'd like to hear from you! If you'd like to let the EMBL community know what you're doing now, please write to alumni@embl.de.

Rose Loughlin was a visitor to the Nédélec lab in Heidelberg at undergraduate level when she contributed to a paper which was published in *Cell* on 25 January. "Using Cytosim, I simulated the formation of microtubule bundles that were experimentally observed in fission yeast. From the simulation I extracted values that were compared to experimental measurements of the microtubule bundles," she explains. "The simulation showed that a few key molecules with properties characterised by our experimental collaborators are sufficient to explain the microtubule organization seen in the bundles."

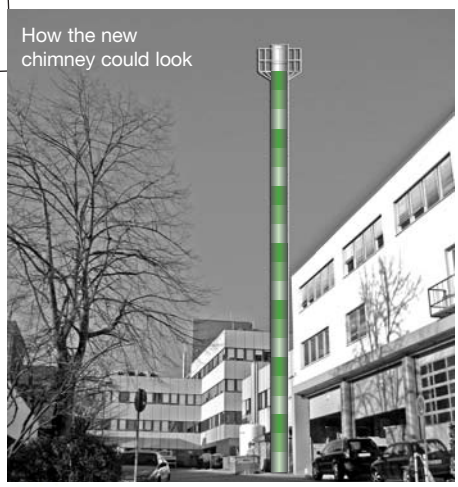
Rose is now enrolled as a PhD student at Berkeley. "Going through the process of publishing a paper was a valuable experience, and I had much to learn about how to clearly communicate scientific ideas on paper," she says. "Working at EMBL opened my eyes to the biological applications of simulation and significantly influenced the direction of my future research."

You can teach an old drug new tricks

The move towards stronger links between molecular biology and clinical research at EMBL is already yielding important results: a collaboration between the University Hospital Innsbruck, Austria and the Molecular Medicine Partnership Unit (MMPU) has discovered how to fight iron disorders with a drug normallyused for hypertension.

EMBL alumnus Günther Weiss, a clinician from the University of Innsbruck, and the MMPU, a joint venture of EMBL and the Medical Faculty of Heidelberg University, found that nifedipine helps the body deal with too much iron by enhancing its excretion into the urine. It has already been used for years to treat patients with high blood pressure, so the drug and its side-effects are already familiar.

"Our discovery is an example of how the combination of basic research and the expertise of clinicians can yield results that are relevant to medicine and could ultimately benefit patients," says EMBL Associate Director and MMPU joint head Matthias Hentze.

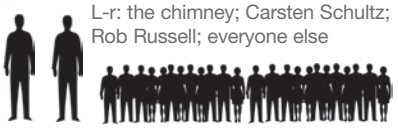


How the new chimney could look

Suggestions please!

Carsten Schultz and Rob Russell won't be the tallest fixtures at EMBL Heidelberg for much longer; a 25m chimney is to be be constructed in the courtyard close to the nitrogen tank as part of the refurbishment of the main steam boiler system.

This means toasty toes in winter and a brand new landmark for the campus. Readers are invited to write in with ideas for how the chimney could be decorated. Construction works are planned to last from April to August, so get your suggestions in soon!

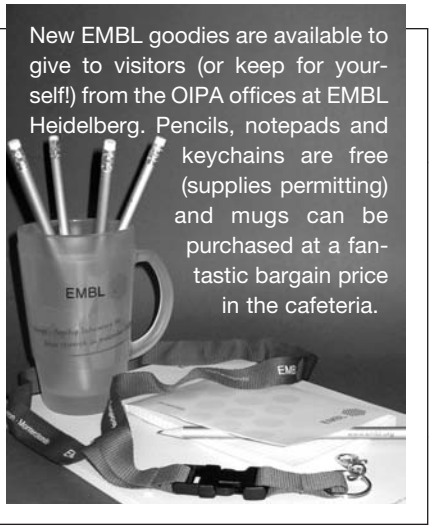


L-r: the chimney; Carsten Schultz; Rob Russell; everyone else

newsinbrief

❑ **A new quarterly journal**, *Systems and Synthetic Biology* (SSB), has been launched by Springer, the latest addition to its biomedical sciences portfolio. A special feature of the journal will be the online publication of supplementary material such as 3D figures, sequence data and alignments, animations and short videos. See www.springer.com for details.

❑ **Detlev Arendt has taken over** from Pernille Rørth as the Postdoc Association's faculty representative. He'll continue to organise workshops on preparing for the academic job market, and can be contacted by any postdoc with problems or questions. See the webpages at www.embl.org/training/postdocs/index.html for more information about events organised by the Postdoc Association and Committee.



New EMBL goodies are available to give to visitors (or keep for yourself!) from the OIPA offices at EMBL Heidelberg. Pencils, notepads and keychains are free (supplies permitting) and mugs can be purchased at a fantastic bargain price in the cafeteria.

❑ **At last, after thirty years**, visitors to EMBL Heidelberg finally know where they are. The loud 'n' proud EMBL logo over the main entrance was unveiled on 26 January and shines out like a beacon across the land (well, Boxberg, anyway) to guide lost biologists home.

❑ **EMBL was just one** of the EIROforum members to present its activities at the MIT European Career Fair, organised in collaboration with the EC and held in Boston on 2-4 February. More than 4,000 visitors, mostly US graduates, PhD students and postdocs, came to find out about job opportunities at EMBL and other European institutes. A survey conducted by the MIT found that the EU is one of the most appealing places to work, with US students expressing a strong interest in coming to Europe, in particular for its superior "work–life balance".

❑ **In addition to being a Group Leader** or a Team Leader, you can now be a Technical Team Leader at EMBL. Their responsibilities focus on technologies which support EMBL's biological research rather than on basic science. Typical examples include a Systems Team Leader in Computer administration; a Software Engineer, leading a team of developers; or a Database Coordinator with database expertise but no responsibility for the biological content.

❑ **A €3.7 million Marie Curie** Research Training Network, "Chromatin Plasticity", coordinated by EMBL Heidelberg's Andreas Ladurner and involving 13 partners including Wolfgang Huber from the EBI, had its kick-off meeting at the end of last year. The partners will be examining the regulation of gene expression through the modulation of chromatin structure. "However, the most important part of this network is the training aspect," explains Scientific Administrator Stephanie Wendlberger. All researchers hired during the four-year project will have access to the network's scientific and career development training opportunities, coordinated by former EMBL postdoc Maria Carmo-Fonseca from the University of Lisbon. "As well as gaining research experience, both the students and postdocs choose a network mentor in addition to their group leader and have a career development plan which is reviewed and updated each year." The network will also provide courses on topics such as project management, presentation skills, scientific writing and grant writing. In addition, many of the activities will be organised together with other EU networks, broadening the scope of both the scientific and the career development courses. www.chromatin-plasticity.org

What happened next? Olivier one year on

Last year we featured EMBL Monterotondo PhD student Olivier Mirabeau ("Of mice and maths: Olivier makes the leap", *EMBL&cetera* 31, Feb 2006), who took interdisciplinarity to new heights by moving from his background in applied maths to wet chemistry in the lab at EMBL. A year on, he's the first author on a paper in *Genome Research* just as he wraps up his thesis and prepares for the next steps in his career.

Produced together with colleagues from Monterotondo and other institutes, including Ewan Birney from EMBL-EBI, the paper, "Identification of novel peptide hormones in the human proteome by hidden Markov model screening", describes an algorithm used to estimate the likelihood that a protein contains new candidate peptide hormones. It then analyses the secretion and processing of two of the found candidates, spexin and augurin, *in vitro*.

"There's very little known about these peptides, and they are likely to be important in normal and pathological physiology as ligands of receptors, which are ideal therapeutic targets," says Olivier. "We took advantage of the newly available genome data to find them, and the SwissProt and Ensembl databases in particular were essential."

Olivier is one of an increasing number of researchers making the most of interdisciplinarity in biology and maintaining their connection with other fields, in his case maths, physics and engineering. "It was hard work but led to a lot of added value, both for my PhD and in the field of these peptide hormones and their receptors," he says. There's much still to be done, but staying true to his roots, Olivier plans to leave the bench again and find a postdoc position in computational biology.

Interdisciplinarity is a major watchword for EMBL. Collaborations such as the MMPU and the increased investment in chemical biology are already making a difference to research methods, and the EMBL International PhD Programme is keen to continue attracting students from other disciplines to complement existing areas of expertise and build up new ones.

He's got a pipette and he's gonna use it: Olivier gets to grips with lab work

awards&honours

EMBL Heidelberg Team Leader **Reinhard Schneider** has been elected vice president of the Executive Committee of the International Society for Computational Biology (ISCB). Now hosted at the San Diego Supercomputer Center at the University of California, the Society was formed in 1997 as an outgrowth of the conference on Intelligent Systems for Molecular Biology (ISMB). The next ISMB will be held in July in Vienna; see www.iscb.org for details.

On 19 March EBI Director **Janet Thornton** will receive the City of Florence Prize for Molecular Sciences from the Organizzato da Società Chimica Italiana and the Università degli Studi, a tribute from the city to recognise scientific excellence and an outstanding contribution to the future of humankind. This year it recognises the growing importance of bioinformatics in biotechnology, pharmaceutics and health. At the award conference at the Teatro della Pergola Janet will give a presentation, "Bioinformatics at the heart of biology and medicine".

EMBL Heidelberg Team Leader **Toby Gibson**'s hardworking 1994 paper, "CLUSTAL W: improving the sensitivity of progressive multiple sequence alignment through sequence weighting, position-specific gap penalties and weight matrix choice", with Julie Thompson and Des Higgins, has just topped 20,000 citations as from January this year. To put that into perspective, it's twenty-first in the list of the most cited papers of all time and an incredible eighth in the list for citations per year. It's also the most cited paper published within the last 16 years, with all the others having been published prior to this date.

PhD Programme news

A couple of milestones from the International PhD Programme:

- In November last year Elena Seiradake was the first E-STAR student to defend her thesis. Studying the X-ray structures of the adenovirus in Grenoble's Cusack Group, Elena is still at EMBL as a bridging postdoc. "I was really lucky to be an E-STAR student. It brought many benefits, especially for travelling to useful conferences and feeling more independent," she says. "It also encouraged me to get involved in the organisation of outreach events, such as the course for teachers we had here last year."
- Massimiliano Mazza is the first EMBL PhD student to be awarded his joint degree by an Italian university, the Università degli Studi di Milano. "I want to thank everyone at EMBL and the University of Milan who made the joint degree possible for their flexibility and availability, and also the people I met at EMBL who make it such a special place," says Massimiliano, who studied meiosis in *S. cerevisiae* in the Knop group. He now plans to find a postdoc position in stem cell biology.

Massimiliano (right) and Prof. Plevani of the University of Milan

Photo: Marietta Schupp

Stephan Meister (far left) receives his graduation certificate, a kiss from **Anne Ephrussi** and a flower from **Matthias Hentze** (right) at 15 December's International PhD Programme graduation ceremony. **Lars Steinmetz** (second from left) was also in attendance for the first time, as he has recently joined the graduate committee to take over the organisation of the predoc course in the future.

events@EMBL

28 February-2 March EMBL Hamburg
Course: SPINE-2/BioXhit practical workshop: Trends in crystallisation

5-7 March EMBL Heidelberg
EMBO Workshop: Viral RNA: Structure, Function and Targeting. Scientific organisers: Michael Sattler, Sybren Wijmenga, Michael Nassal

23 March EMBL Heidelberg
Staff Association General Assembly preceded by the Clubs Informational Fair

26-28 March EMBL Heidelberg
Course: ALMF: Basics in confocal fluorescence microscopy, 3D imaging and data presentation, confocal imaging of living samples

10-12 April EMBL Heidelberg
Conference: Third Annual BioMalPar Conference on the Biology and Pathology of the Malaria Parasite

13 April EMBL Heidelberg
Conference: First Annual AntiMal Conference on Drug Development for Malaria Chemotherapy

26 April EMBL Heidelberg
Science and Society: "Brainhood: Historical roots and contemporary presence of the cerebral subject", Vidal Fernando, Max Planck Institute for the History of Science

26 April-5 May EMBL Heidelberg
Course: International Symposium and EMBO Practical Course on High Throughput Microscopy for Systems Biology

3 May-6 May EMBL Heidelberg
Conference: EMBO Conference on Chromatin and Epigenetics

9 May-11 May EMBL Heidelberg
Conference: International Women in Science Conference: The Way Forward

For more events, visit www.embl.org/events

A Scientific Writing Course for EMBL PhD students will be held at EMBL Heidelberg on 21-23 March. Financed by the E-STAR grant and organised by EICAT, the course will cover style elements, the publishing process and a session on applying for fellowships. Places are limited, so contact eicat@embl.de as soon as possible if you're interested. For those of you who can't take the March course, a second is planned for early autumn.

EMBL*&cetera* 37, February 2007. EMBL*&cetera* is published by EMBL's Office of Information and Public Affairs, Meyerhofstrasse 1, D-69117 Heidelberg, e-mail: info@embl.de. Online version available at www.embl.org/aboutus/news/publications/newsletter. Editor: Vienna Leigh. Contributors: Yvonne Kaul, Michal Karzynski, Lena Raditsch, Anna-Lynn Wegener, Kota Miura, Lindsay Johnson. Photographic support: EMBL Photolab. Printed by ColorDruckLeimen.