

## There's something for everyone in Karyn's Genomes

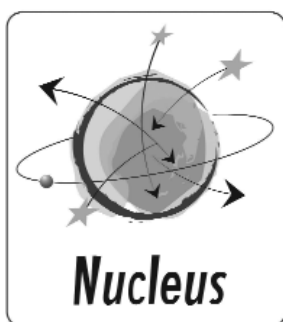
Tucked in among the resources offered by the EBI's External Services group is a website called Karyn's Genomes, aimed at the general public. This database aims to show laypeople why genomes are interesting from a social, commercial and "governmental" point of view, as well as the scientific one. It provides the major physiological and sociological characteristics of organisms and gives some hints about what science may tell us about these genomes in the future. The site currently describes about 240 completely sequenced organisms, including 20 Archaea, 185 bacteria, 38 Eukaryotes, and 2 viruses.

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## Daniel Dennett to deliver lecture at EMBL

In case the glasses didn't give it away – no, the picture to the right isn't Charles Darwin, but rather Daniel Dennett, philosopher from Tufts University in the US and Darwin scholar. Almost a decade ago Dennett, who has written extensively on the problem of consciousness and the nature of the mind, wrote a book called "Darwin's Dangerous Idea," in which he claims that modern thinkers have yet to face up to the full ramifications of evolutionary thought. On Friday, March 11, Dennett will come to EMBL-Heidelberg for a talk in the Operon at 4pm as part of the Forum on Science and Society. This time his task is to deconstruct "Religion as a natural phenomenon."

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## EMBL participates in largest EC Science and Society grant

EMBL is joining 50 of Europe's top science centers, research institutions, universities and other organizations in a major initiative to improve science teaching in European schools. The European Commission will contribute nearly seven million Euros to the project, called NUCLEUS, making this the largest grant ever awarded by the EC in the area of "Science and Society." The EIROforum organizations (Europe's seven major intergovernmental research facilities, including EMBL) will contribute another 1.66 million Euros to the project. The Laboratory will participate in "Science on Stage," a Europe-wide teaching fair, and launch a new international journal for science teachers.

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## EMBL retreat: towards a Lab "postdoc culture"

April 22-24 are the dates for EMBL's first retreat for postdoctoral fellows from across the five sites. While the Laboratory has regularly sponsored activities for its predocs and group leaders, it hasn't done as much for postdocs, and that's a time in a scientific career when it would be good to have more support and opportunities for training. Postdocs came up with idea for the retreat and are organizing all aspects. Scheduled activities include 15-minute scientific talks followed by informal discussion sessions, a keynote lecture by Martin Raff from University College London, and a panel discussion with speakers from academia, industry, publishing houses and funding agencies on career development and alternative careers.

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## Predocs in Rome

Events organized by EMBL predocs have moved beyond the yearly symposium held in Heidelberg, and are expanding and developing, thanks to major new funding from the EU. Upcoming events include a minisymposium in May and a virtual conference in 2006. Find out more about "Animal Models: Tips and Tricks from Nature," organized jointly by PhD students from EMBL-Monterotondo and the University of Rome "Tor Vergata."

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## Launching Nucleus: EMBL to participate in EU's largest-ever science and society grant

EMBL is joining 50 of Europe's top science centers, research institutions, universities and other organizations in a major initiative to improve science teaching in European schools. The European Commission will contribute nearly seven million Euros to the project, called NUCLEUS, making this the largest grant ever awarded by the EC in the area of "Science and Society." The EIROforum organizations (Europe's seven major intergovernmental research facilities, including EMBL) will contribute another 1.66 million Euros to the project.

NUCLEUS aims to reach tens of thousands of teachers over the next four years, either by involving them directly in activities or providing them with new resources. A project called PENCIL, proposed by the ECSITE network of science centers and museums in partnership with the education network European Schoolnet, will play a central role in structuring NUCLEUS.

EMBL and EIROforum will be chiefly involved in two projects. The first, "Science on Stage," is an enhancement of "Physics on Stage," which EIROforum has held three times as part of European Science Week. "Science on Stage" is a

"teacher's Olympics" that involves thousands of teachers from across Europe. National events culminate in a major international festival that showcases Europe's best ideas and resources for the classroom, alongside talks and workshops from leading scientists and educators. Funding will permit two complete cycles of national and international festivals. The 2005 international festival will be held in November at CERN.

EMBL's main role will be to launch a new international journal for science teachers, hosted in Heidelberg and supported for four years under the grant. The journal will be published quarterly and will include teaching projects, breaking news from science, spotlights on great teachers, projects, institutions and scientists, and critical reviews of new teaching resources. An editor will be hired soon.

NUCLEUS is the result of a call opened in 2002 by the Directorate General for Research of the EC. The call was motivated by the realization that a large-scale effort will be necessary to motivate children to pursue scientific careers as well as to help society cope with new discoveries and technologies in a healthy way. To achieve the goals of the "European Research

Area," it has been estimated that Europe will need an additional 700,000 researchers by the year 2010. Recent analyses reveal that the falling interest among young people in science studies and careers can largely be attributed to the lack of appeal of science classes in schools.

Other organizations participating in NUCLEUS are The University of Reading (UK), the Vienna University of Technology and the CISCI-consortium, and the Ecole Normale Supérieure (France). NUCLEUS includes pilot projects that link schools, laboratories, science centers and academia; a major web portal providing the latest science teaching resources; opportunities for training; and new methods for using science-related films in the classroom. These mechanisms aim to bridge gaps between formal and informal education and between cutting-edge research and the classroom. They will set up long-term relationships between scientists, teachers, schools, and other partners in education, identifying best practices and needs, and developing and testing new strategies for science teaching.

## Postdoc retreat to outline plans for new programme

World class research labs and facilities, high quality seminar programmes, a vibrant international atmosphere. Everyone agrees that EMBL is a great place to be a postdoc.

But while predoctoral students at EMBL have a comprehensive programme to ensure that they are integrated fully into the Lab, both scientifically and socially, postdocs haven't had the same kind of structure. Now they've decided they need a space of their own.

"Being a postdoc means being in a time of transition," says Shannon Black. "We're no longer students but are not yet independent scientists. What has been missing so far is a structured network that can help strengthen the postdoc community and give us opportunities for scientific and social exchange, and give us solid footing for our careers."

Iain Mattaj and Pernille Røth surveyed EMBL's postdocs to find out what initiatives they thought would help. Adam Cliffe and Russell Collins quickly responded on behalf of the postdoc community with a proposal for how to proceed. It all starts off with a retreat organized by and for postdocs.

Participants will discuss ways in which postdocs can help each other and increase their interactions throughout the EMBL units. Other activities will include 15-minute talks by postdocs followed by informal discussion ses-

sions, a keynote lecture by Martin Raff from University College London, and a panel discussion with speakers from academia, industry, publishing houses and funding agencies on career development and alternative careers.

Supporting this retreat is one of the steps that EMBL is taking to establish a full-fledged postdoc programme, which will be overseen by Pernille. The initiative will be based on voluntary activities that will help postdocs get the most out of their time at EMBL as well as prepare them for life afterwards. Through the programme, postdocs will increase their exposure to ongoing projects and technology used across the Lab, hopefully leading to new collaborations. They'll be able to give each other practical help and advice on issues such as project management and career development. The programme will also give postdocs an opportunity to meet scientists outside their own division, which will help to counter the isolation that they sometime feel when they start work at a new lab.

The retreat will take place from April 22-24, 2005, at Mont Sainte Odile in Alsace, France. Postdocs at all five EMBL sites are encouraged to attend. To sign up, go to [www.embl.de/postdocs/](http://www.embl.de/postdocs/) or contact [postdoc.retreat@embl.de](mailto:postdoc.retreat@embl.de).

## opportunity knocks

Attention young researchers – there is an exciting new opportunity for you to take part in "Spindle Dynamics," a new Marie Curie Research Training Network coordinated by EMBL-Heidelberg's Thomas Surrey. Six postdocs and 9 PhD students will work on projects unravelling the machinery behind cell division. The positions will begin in 2005 (lasting 2 years for postdocs and 3 for predocs), and will be based in one of 6 European countries. Contact Thomas at [surrey@embl.de](mailto:surrey@embl.de) for more details or visit [www.unileipzig.de/~organik/spindle\\_dynamics/](http://www.unileipzig.de/~organik/spindle_dynamics/)



Photo: EMBL Photolab

## Everything you ever wanted to know about genomes: Karyn's genomes

In 2003 the EBI's External Services team launched the 2can educational website which quickly became a popular site for newcomers to bioinformatics. Users asked not only for specialized tutorials and information for the bioinformatician, but others like health officials, teachers and the public wanted more details about specific diseases and their causes.

Thus group leader Rodrigo Lopez and Karyn Duggan arrived at the idea of "Karyn's Genomes," the first biological database to be named after a living human being. It would be limited to complete genomes and contain descriptions and information about why these are interesting to more than just scientists.

Visitors to the site will appreciate the amount of work that has gone into the project. Karyn continues with her job of processing submissions to the major sequence databases and user support as well as researching new genomes. "The goal is to show genomes from a social, commercial, medical, health and governmental point of view, as well as the scientific one," Karyn says. "The database provides the major physiological and sociological characteristics of organisms and gives some hints about what science may tell us about these genomes in the

future." From the site, users can link to sequences, taxonomy and references from MEDLINE.

Karyn's Genomes currently describes about 240 completely sequenced organisms, including 20 Archaea, 185 bacteria, 38 Eukaryotes, and two viruses. New entries are added whenever a complete genome becomes publicly available in the EMBL Nucleotide Sequence Database. The virus section is still in its infancy and viroids, plasmids and organelles are being considered for the future.

"Whole genome sequencing has exploded following the completion of the Human Genome Project," Karyn says. "There are now 3000 complete genomes from all kinds of organisms in the EMBL Nucleotide Sequence Database. Newcomers often wonder why more funding is being invested in analysing DNA – Karyn's genomes was designed to answer this and other questions."

Why, for example, would scientists be interested in the genome of the bacteria *S. aureus*? Karyn says, "Comparing its genome to other species may allow scientists to eradicate MRSA infections – producing antibiotics to combat

emerging, drug-resistant strains. Other organisms, such as *D. vulgaris*, could be used to clean up environmental toxins. Genomic information can provide governments with information to combat the threat that bacteria such as *B. pseudomallei* and *B. anthracis* could pose if used as a source of bioterrorist weaponry. The newly-finished chicken genome may allow us to learn about the transfer of viruses between species, and how and why evolutionary quality control during reproduction is important – in other words, why good sex is important for chickens."

Information from the Karyn's Genomes database is available via 2can, the EBI's SRS server ([srs.ebi.ac.uk](http://srs.ebi.ac.uk)), the EBI genomes ([www.ebi.ac.uk/genomes](http://www.ebi.ac.uk/genomes)) and several other pages ([www.ebi.ac.uk/proteomes](http://www.ebi.ac.uk/proteomes), [www.expasy.org/sprot/hamap/](http://www.expasy.org/sprot/hamap/)).

So be sure to drop in on Karyn – at least her website. If you want to talk to the real thing, you may have to look in the Sanger Library where she will be catching up on the latest journals. Keeping her namesake up-to-date is a time-consuming business.

[www.ebi.ac.uk/2can/genome](http://www.ebi.ac.uk/2can/genome)

## PhD symposia expand thanks to EC grant: Next stop, Rome

Events organized by EMBL predocs have moved beyond the yearly symposium held in Heidelberg, and have now received significant funding from the EU to expand and develop. The next event will take place in Rome in May.

Predocs at EMBL-Monterodondo have joined together with fellow PhD students at the University of Rome "Tor Vergata" to launch "Animal Models: Tips and Tricks from Nature", (at the Forum Sport Center in Rome, May 12-14, 2005; deadline for applications March 12). Sessions will offer an overview of basic and applied research that can be done using animal models, and how the results from this research can lead to technical improvements and advances in healthcare.

This is the first time that the students have organized an event in Rome, and the planning has been both exciting and challenging. In addition to putting together a fascinating scientific programme, they also had to take care of logistics, like finding a venue that could host 150 guests. "Nadia Rosenthal, head of EMBL-Monterodondo, has provided us with lots of help and encouragement," says Maria Ermolaeva, chair of the organizing committee. "Working with PhD students from the University has also helped to connect the event to the local community."

One of the biggest challenges that the symposium committee faces each year is securing the

financial support needed to invite speakers and to assist the student participants who might otherwise lack the resources needed to attend the event. When planning the 2004 symposium, the committee submitted a grant proposal to the EC that would cover 5 events, focused on a central theme, to take place over the next three years. They were successful and the Research Directorate on Human Resources and Mobility of the Marie Curie Actions awarded them a grant of nearly 500,000 Euros.

Increasing the involvement from the Outstations, reaching out to more PhD students and addressing the general public were important aims outlined in the grant. The students decided to include a web-based conference on the roster of planned events. The virtual conference (June 2006) will open the symposium to PhD students from across the world. The entire event – planning included – will be online, allowing students from the Outstations to take a much more active role. The public-oriented events will help to bridge the gap between life scientists and society; each conference will incorporate outreach activities, such as public lectures and a writing contest, the first of which were launched last year.

For more, see <http://phdsymposium.bio.uniroma2.it/> and <http://symposium.predocs.org/>

– F. Filipp, A. Koutsos and C. Sciarretta

## Faculty in France

EMBL faculty travelled to Autrans, France, on December 10-12, 2004, for their annual retreat. Organizers Pernille Rørth, Christoph Müller and Rolf Apweiler decided to focus the event on the matter at hand for any EMBL lab – science, science and more science. Participants heard talks from their colleagues about the exciting developments going on in their labs followed by walks in the beautiful sunny hills during the afternoon breaks. The consensus? The new formula for the retreat was a great success. It provided lots of opportunity for EMBL faculty to exchange ideas and perhaps even form new collaborations.

EMBL predoc selection week is coming soon. If you are an EMBL alumnus/a and are interested in predoc candidates not selected to take part in EMBL's programme for 2006, fill out the form at [www.embl.org/aboutus/alumni/phdform05.html](http://www.embl.org/aboutus/alumni/phdform05.html) and return it to EMBL's International PhD Programme office by 1 March, 2005.



## Cooking up a recipe for simulations: COMBIO project to set guidelines for systems modeling

It's all the rage today to simulate biological systems in the computer. New methods are revealing how complex biological processes really are, and understanding them will require models. But what programs can handle the task, and to what level of detail should a model go? Luis Serrano doesn't have a definitive answer, but he's mapped out a strategy to find one, drawing on a solid history of model-building at EMBL. His plan was so good that it was awarded an EU integrated projects grant totalling nearly 2 million euros. The project is called COMBIO, and it involves nine partners from across Europe. Their goal is to come up with a set of guidelines for how to help scientists in the lab use mathematical tools to understand biological systems.

There are many factors that can influence how a biological process takes place (for example, the type, number and concentration of molecules that need to be present, where in the cells things happen, and the element of randomness). Models and simulations try to recreate the different scenarios and predict what will happen when one or more of the factors changes. But how do you tell the difference between a good computer modeling system

and a bad one? And how do you know whether or how you can apply it to your project?

"You don't," says Luis, "at least not yet. There are no clear guidelines on which tools are best to use. We're not even sure which level of detail is needed to understand a biological system. Our idea was to combine experts working on different aspects of systems biology problems come up with a recipe book."

Luis and his colleagues (including François Nédélec, Isabelle Vernos and EMBL alumna Shoshana Wodak) will use two different model systems: p53-MDM2, a gene network involved in programmed cell death; and the process of chromatin-controlled microtubule nucleation and organization. The groups in the consortium have a lot of experience working with these systems, so testing them will be easy.

"The p53-MDM2 system is interesting because it has an oscillating cycle," says Luis. "It has been proposed that different genes may get transcribed as the frequency of the cycle varies and this could determine whether or not the cell dies through apoptosis. Spatial factors are also an important aspect of this system – one that we are particularly interested in. Proteins come in and out of the nucleus and this may be important for the activity of the cell. The idea

is to understand the role of stochasticity, space and delays on the simulation of the p53/MDM2 network."

The other model is the mitotic spindle, an area of research that Isabelle and François and other EMBL groups have worked on for many years. It provides a good well-known experimental system *in vitro* that is controllable.

Experimental groups will be working on the cell biology of the two systems. Bioinformatics groups will support them with information on missing genes, for example, or by providing information on networks in which the genes are known to be involved. Then they'll pass their results to the simulation groups, who will recreate the different scenarios on their computers, with the ultimate goal of drawing generic conclusions for the guidelines.

Luis and colleagues will make the guidelines, along with the models and software produced along the way, available to the research community via the project website. In the meantime, the COMBIO consortium will have their first annual meeting at EMBL-Heidelberg on February 24 to take stock of the progress on the cookbook.

[www.pdg.cnb.uam.es/COMBIO/](http://www.pdg.cnb.uam.es/COMBIO/)

### scienceforteachers

## All roads lead to Milan and Monterotondo: ELLS goes to Italy

In 2004, ELLS travelled south to forge sustainable links between teachers and research institutions in Italy. Our first port of call was Milan.

The idea of organizing a course in Milan started to germinate about one year ago, when Maria Luisa Technini, an EMBL alumna who is a Genetics Professor in Milan Medical School, contacted ELLS. Together with the *Ufficio Scolastico de la Lombardia*, Maria Luisa had already established the CUS-Bio (Centro Università-Scuola per le Bioscienze) bringing together scientists, teachers and students in Milan University. A very successful course "*Ingegneria genetica e sue applicazioni*" for a group of 150 teachers had already taken place in the spring and Maria Luisa was hoping to organize another course in collaboration with ELLS for the autumn. As part of the collaboration, Silvia Boi, a postdoc-turned-teacher, who is now a full-time member of CUS-Bio, spent June at EMBL adapting ELLS' activities to their needs. CUS-Bio also hired a second full-time member, Cinzia Gracioli, an experienced science teacher particularly skilled in audiovisual technologies applied to teaching.

For three afternoons, 30 Italian teachers participated in the first ELLS-CUS-Bio LearningLAB, "From Organisms to Genes," following

the development of fish embryos, performing fish mutant genotyping by PCR and hunting a protein on the web in a bioinformatics activity. ELLS Education Officer Alexandra Manaia flew in from Heidelberg to lend a hand in the wet labs, and EMBL Computer Scientist Francesca Diella led the bioinformatics activity. But most of the work was carried out by the local team who did a wonderful job: the CUS-Bio staff Silvia and Cinzia, Professors Maria Luisa Technini, Paolo Plevani, Giovanna Viale and Franco Cotelli, and Milan University fish experts. CUS-Bio has got off to strong start with a full schedule of exciting activities for the future, including an e-learning module based on the course "From Organisms to Genes" developed in collaboration with ELLS (see <http://users.unimi.it/cusbio>.)

ELLS' second port of call was EMBL's Monterotondo Outstation, for a LearningLAB on "Stem Cells: promises and challenges." Cornelius Gross, who did a brilliant job coordinating the Monterotondo scientists, gave a general overview of the course. Fresh off a flight from Singapore, Nadia Rosenthal, the Outstation Director, gave an outstanding talk on stem cells and their applications. Following protocols carefully selected and adapted by Walter Witke, young EMBL scientists Rossana De Lorenzi, Daniela Ruffell, Carla Sciarretta

and Arianna Nenci guided the teachers through exciting hands-on activities. José González and his collaborators demonstrated blastocyst microinjection.

For the closing act, ELLS were very fortunate to benefit from the collaboration of two Branco-Weiss Science-in-Society Fellows: Giuseppe Testa and Giovanni Frazzetto. Giuseppe gave a great talk on bioethical implications of stem cell technologies, followed by a lively role-play game designed by Giovanni. The teachers also had fun playing "The Stem Cell Game," a board game developed by ELLS.

The Monterotondo team did such a great job and the teachers' response was so positive that we are all already dreaming of the next Monterotondo LearningLAB!

– The ELLS team



Italian science teachers at the bench.

# the EMBO corner

## *Publishing by scientists for scientists*

Scientific publishing is a dynamic business. The days when journals served solely to provide a permanent scientific record are long gone. Today publications not only have to keep pace with changes in scientific fields, they must also keep up with evolving technologies and publication models – and cope with their implications, as the recent flurry of controversy over Open Access illustrates. And increasingly, publications carry a responsibility for driving the emergence of new fields.

EMBO has lived these transformations through its longest standing publication, *The EMBO Journal*. Close links with the scientific community have helped the journal to evolve in line with developments in molecular biology,

broadening its scope as new focus areas have emerged. These changes ensure that *The EMBO Journal* is a “living” publication always reflecting the current scientific climate. One constant throughout times of transition, however, has been the basic character of the journal. It remains true to its reputation as a quality, peer-reviewed publication with the highest standards of content evaluation and delivery.

A recent addition to the structure of the journal underscores this editorial integrity. Four new senior editors – David Baulcombe, Ari Helenius, Tim Hunt and Tony Hunter – will provide a further stamp of quality and help identify future directions. January 2005 also saw a change in Executive Editor. Iain Mattaj retired from the role after 15 years of dedicated input to the journal, having helped shape its direction in the formative years. Iain’s replacement is Pernille Rørth, a senior scientist at EMBL and EMBO member, whose breadth of scientific knowledge fits perfectly with the extensive scope of *The EMBO Journal* today.

*EMBO reports* illustrates another important facet of scientific publication. The launch of the journal in 2000 reflected an increased need for dialogue on the societal implications of sci-

entific research and the recognition by EMBO of the value of a focused, short format journal. And again, it was exactly this kind of awareness of the changing needs of the scientific community that shaped EMBO’s decision to launch *Molecular Systems Biology* with Nature Publishing Group (NPG) in March 2005.

EMBO sees a parallel between the beginnings of molecular biology in the 1960s and systems biology today and the need to bring structure to the field. The nature of this emerging discipline also demands a look at novel publication formats. As a result, *Molecular Systems Biology* will be published exclusively online enabling an innovative presentation of data and an online forum for setting new standards.

Through the new journal, EMBO aims to stimulate research and promote novel approaches to systems integration. The journal will also be Open Access reflecting EMBO’s awareness of the dynamic nature of the field and the need to make research freely accessible as soon as it becomes available.

*Molecular Systems Biology* is now accepting submissions online at [www.molecularsystemsbiology.com](http://www.molecularsystemsbiology.com).

– Lindsay Johnson, *Les Grivell*

## To America and back... an interview with EMBL alumnus Michael Boutros



Photo courtesy of DKFZ

After receiving his PhD from EMBL in 1999, EMBL alumnus Michael Boutros followed a road less traveled. He went to Harvard’s prestigious Kennedy School of Government to do a two-year masters degree in Public Administration. After that, he headed back to the bench, and in 2003 he returned to Heidelberg to head up a lab at the German Cancer Research Center.

**You took an unusual step in your career after EMBL. Why?**

The idea to go to the Kennedy School originated from my time at EMBL. I was involved in many Science and Society activities during my PhD, and this planted the seed in my mind of doing something different after that. I wanted to look into other aspects of science, and the Kennedy School provided a great opportunity to do that. The programme was very broad, covering everything from macro-economics to how science policy is determined. It was also incredibly interdisciplinary. I took courses that brought together students from law, economics and science.

At the same time I kept my foot in science, working in the lab of Norbert Perrimon. We were trying to establish genomic technologies to understand signaling. It was an exciting time: the sequences of several genomes had recently been completed. Suddenly we had all the puzzle pieces on our desk. During my PhD time, one of the major obstacles was to find the gene that was responsible for the process you were looking at. With many genomes sequenced, the question had been turned

around. We tried to develop systematic strategies to put the puzzle pieces together.

My lab is now working on using genome-wide RNAi approaches to systematically look at signaling systems and their biological implications, such as how they lead to growth and how growth leads to cancer.

**Was returning to Europe a difficult decision?**

The US is a great place to do science. Things move quickly and people interact a lot. But Europe is an increasingly attractive place to do research. There is generous funding now available to young independent investigators through the EU’s Marie Curie Excellence Grants and the German Research Foundation’s Emmy Noether Programme. I managed to secure solid funding to establish my lab at the German Cancer Research Center. I’ve also been very lucky in finding excellent people from many different countries to work in my lab. My group now consists of people from Germany, France, the Netherlands, Turkey and China. Europe is making good progress at attracting international scientists.

I’d like to see Europe develop more of a “postdoc culture.” Unfortunately it doesn’t help us as lab heads – and European research in the long run – when good students pack up after their degrees and head to the US. There is currently

a lot of effort in setting up PhD programmes to recruit young researchers and train them through their studies. There are also many initiatives to repatriate Europeans at the independent researcher level. The time in between needs to be addressed. The postdoc years are very productive ones and this should be harnessed and nurtured in Europe.

**You are a member of the EMBL Alumni Association. How will the network help you?**

The contact information of other members provided by the Association is already a great start. The possibility to advertise vacancies in our labs to the alumni community is also very helpful. EMBL alumni could also provide very useful information to people who are in the situation I was in a year ago. I was a young researcher moving back to Europe to head up my own group after having spent several years in the US. The European research environment has changed quite a lot since my PhD studies. Young researchers have more independence and more responsibility now. Advice from alumni who have had a similar experience and are familiar with the issues could make a return to Europe much easier.

– interview by Sarah Sherwood

The EMBL Alumni Association offers a wide range of resources to registered members. To get access, sign up at [www.embl.org/aboutus/alumni](http://www.embl.org/aboutus/alumni)

## Helgoland isn't as far away as you'd think

The EMBL-Hamburg Outstation has leased 300m<sup>2</sup> of lab and office space from DESY, in order to accommodate its high cell density (HCD) fermentation and high-throughput crystallization (HT-X) facilities. The extra space is located on the second floor of building 3, also known as "Helgoland", on the DESY campus about 500m from the EMBL main building. The area has been extensively remodeled and upgraded, and the Outstation plans to start full operations at the end of February.

Both facilities will play a key role in a current emphasis of research at the Outstation: tuberculosis. EMBL-Hamburg is a partner of the German Tuberculosis Consortium (X-MTB, [www.xmtb.org/start.html](http://www.xmtb.org/start.html)), which is closely associated with the worldwide MTB consortium ([www.doe-mbi.ucla.edu/TB](http://www.doe-mbi.ucla.edu/TB)). Like most of structural biology, the projects face the bottlenecks of protein production and crystallization.

Despite many improvements, X-ray crystallography is still a slow technique. The main problem lies in the need for relatively large amounts of chemically and structurally homogenous samples and the fact that the optimal crystallization conditions for any particular biological sample can't be predicted. This means scrutinizing many molecular constructs in a large number of different crystallization solutions.

There are several ways to tackle low protein yields. HCD fermentation can result in optical

cell densities at 600 nm of up to 150, by carefully monitoring the pH of media and oxygen and nutrient supply. The HCD fermentation laboratory is supervised by Anni Linden and is already being used by the fermentation team (Rajesh Singh and Elzbieta Nowak) to produce targets in *E. coli* with low yields under usual fermentation methods. The appropriate choice of host organisms is another important parameter. Starting at the end of February, the Outstation plans to start expressing difficult targets from *M. tuberculosis* in *M. smegmatis*.

Speeding up crystal production requires a high degree of automation and robotics, and the Outstation has acquired a two-module system to achieve this. A liquid handling module and a storage and retrieval unit will be located in two adjacent rooms. The liquid handling robot will produce crystallization experiments in 96-well micro titer plates (MTPs) starting from stock solutions. It was installed on site at the end of 2004 and it is currently being aligned and validated. Production will start in March of 2005. All crystallization experiments will be stored and imaged in the neighboring, temperature controlled unit at 19°C, which can hold up to 10,000 MTPs. Installation will begin at the end of February and is expected to last 4 to 6 weeks. The HT-X facilities are headed by Jochen Müller-Dieckmann and technician Xandra Kreplin.

## Ensembl coming soon to a seminar room near you

Keeping on top of the range of services offered by the Ensembl database team can be a difficult task – even for the most diligent bio-informaticist. The tools necessary to efficiently access the wealth of information are constantly evolving. To help out, the Ensembl team have developed an extensive full-day course, which is regularly hosted in academic institutions worldwide.

Upcoming workshops include:

- February 24-25 – Dept. Genetics, Cambridge University, UK
- March 2 – Dept. Biology, University of York, UK
- March 10-11 – Center for Scientific Computing, Espoo, Finland
- April 11-19 – HGM Japan (Kyoto) and Riken (Yokohama)
- May 4-5 – CBU, Bergen, Norway

If you want to know when Ensembl will be at an institute near you, or are interested in hosting a workshop, contact Xosé Fernández ([xose@ebi.ac.uk](mailto:xose@ebi.ac.uk)).

## From selenomethionine to seafood: EU projects meet in Barcelona

What's the connection between seafood and structural biology? What could draw some of Europe's best biologists to the harborside in Barcelona in December? If you're thinking of a zinc-finger domain found only in proteins of Spanish gamba... not even close. The event was a major EC joint meeting for projects in structural genomics and proteomics that have been funded under FP6. Several groups from across EMBL attended the conference, which was organized by the Fundamental Genomics unit of the European Commission's DG Research.

Well-represented was the BIOXHIT project (Biocrystallography (X) on a Highly Integrated Technology Platform, [www.bioxhit.org](http://www.bioxhit.org)), coordinated by the Hamburg Outstation. Manfred Weiss, who heads the research arm of the project, proposed using the framework of the EC conference as a first annual meeting for BIOXHIT partners, some of whom traveled from as far as Poznan, Poland, or Oulu, Finland. Those are two of the places where the project has established Training, Implementation and Dissemination (TID) centers.

The overall goal of BIOXHIT, according to project coordinator Victor Lamzin, is to raise the level of technology at beamlines across Europe, standardizing platforms to make

things easy for users. In the past, scientists have had to prepare samples and make technical compromises based on the specific beamline they bring their crystals to. Making that process simpler is one aim of BIOXHIT. Training is also an important mission. Many more scientists are using crystallographic methods – a big change since just a few years ago, when only specialists came anywhere near a beamline. Sine Larsen (ESRF), who is representing the University of Copenhagen in the project and heading the project TID committee, gave a special session on that aspect of the project.

Daniela Jaenicke, the BIOXHIT administrator, says that the first-year progress report was enthusiastically received by both the Commission and other participants in the conference. "We have reached many of our milestones ahead of plan," she says. "This joint European meeting was a great idea – it gave us the opportunity to present our well-advanced project to the public."

Other items on the program organized by the BIOXHIT consortium were the presentation of 11 posters on recent scientific highlights and a public seminar on intellectual property rights and technology commercialization by Martin Raditsch and Thorsten Schneider (EMBLEM).

The event was equally an opportunity to discuss science with policy-makers, scientific advisors and journalists from all over the world, as well as to exchange experiences with scientists from related FP5 and FP6 projects. Those include SPINE – the "Structural Proteomics in Europe" initiative (an FP5 Integrated Project), in which the Grenoble, Hamburg and Hinxton Outstations participate as leading partners. SPINE's goal is "to build a standard, streamlined decision-making process to identify protein structures important for new drug discovery." In this project, Hamburg heads a workpackage to develop protein technologies. Grenoble's emphasis, shared amongst the PSB partner institutes, is on high-throughput synchrotron technologies, novel high-throughput methods to find soluble fragments of proteins, as well as solving structures of human health targets. The EBI deals with bioinformatics and data management. SPINE had its mid-term review in London in October 2004 and came through with flying colours, now in full swing for the final year of the project.

Another attendee was EMBL-Heidelberg's Luis Serrano, who coordinates a project called 3D Repertoire that is just getting off the ground.



## A closer look at “Darwin’s dangerous idea”

“Darwin’s dangerous idea” refers to the monumental impact of the revolutionary idea of evolution by natural selection; it is also the title of a book by Daniel C. Dennett, published in 1995. In it, Dennett, a philosopher at Tufts University, explains why some people have shied from accepting the full ramifications of Darwin’s teachings. The persons Dennett accuses of flinching when faced with the full implications of Darwinism are scientists and philosophers of the highest standing: Noam Chomsky, Roger Penrose, Jerry Fodor, John Searle, and especially the late Stephen J. Gould. Dennett begins his book by offering a description of Darwinian theory at an abstract philosophical level. He then looks at how this perspective sheds light on some controversies within evolutionary biology, and finally at its consequences outside biology, for social and moral philosophy.

Darwinian evolution has a wide range of applications and Dennett uses this premise as an opportunity to travel through the history of science and philosophy. He begins by explaining why Darwin has come up with the “single best idea anyone has ever had” and why his idea was so revolutionary – and dangerous. He offers a brief account of pre-Darwinian ideas – presenting Locke as an exponent of the traditional viewpoint and Hume as someone who came very close to Darwin’s train of thought. The key elements of Darwin’s “dangerous idea” are a denial of essentialism and an understanding of natural selection as a substrate neutral, algorithmic process, applicable to an extremely wide range of phenomena and capable of achieving immense feats by slow accumulation over large extents of time and space.

Dennett argues that basic evolutionary processes can be extended outside biology, that

all design can be seen as movement through a single unified “Design Space”. Human creativity is no exception.

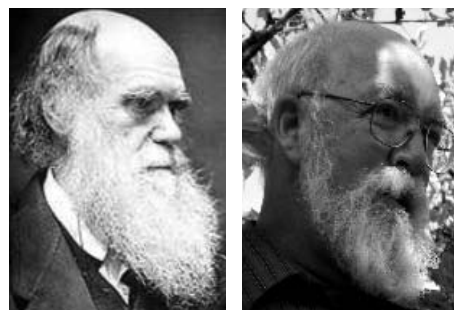
In part two, Dennett looks at attacks on and extensions of Darwinism inside biology. Darwin himself carefully restricted the domain to which he was prepared to apply his theory, but Dennett argues that continuing to do so is no longer a tenable position to take.

As Dennett sees it, Darwinian heresies are widespread both outside and inside biology. Many people are more cautious about the question of how Darwinism applies to human beings, and they tend to introduce nuances that rub orthodox neo-Darwinians the wrong way.

In part three, Dennett looks at how the extension of evolutionary ideas outside biology has been resisted in fields like linguistics, philosophy, and ethics. This will be the most interesting material for many.

This distinguished Darwinian scholar will give a seminar at EMBL-Heidelberg within the Forum on Science and Society on Friday, 11 March at 16:00. This time his task is to deconstruct “Religion as a natural phenomenon.”

– Halldór Stefánsson



Darwin (left) and Dennett (right)

### from the Staff Association

**The Staff Association’s office at EMBL-Heidelberg has moved** to its new location, room 4.54B in the “new” wing of the main building – directly across the courtyard from the canteen and up one floor. Office hours, phone number and e-mail address remain the same (Mon-Fri 9:00-13:00, ext. 8541, [staff@embl.de](mailto:staff@embl.de)).

The **spontaneous collection by the Staff Association** for victims of the disastrous tsunami in Southeast Asia brought in a total of 2,000 Euros, including “topping up” by the Administration and the Staff Association. The money will be given to UNICEF. Thank you for your generosity, especially since many of you had already contributed elsewhere!

**The next Staff Association General Assembly** is scheduled for Wednesday, February 23 at 3 pm in EMBL-Heidelberg’s Operon auditorium. In addition to the annual report from the committee and financial report from the treasurer, the revised statutes will also be presented for approval to the members of the Staff Association (all employees with a contract of at least three months). If accepted, they will go to the Director-General for final approval. The last revision of the statutes took place in 1995, and several changes were necessary to bring them up to date.

A new attraction at the General Assembly will be an **informational fair for EMBL clubs**. If you represent an EMBL club and would like to

### After extensive renovations, the ISG has reopened for business.

The changes to the EMBL-run hotel include a new plumbing system, renovated bathrooms for 30 rooms, and a complete overhaul of the restaurant and bistro area. They’ve also installed wireless networking in the conference rooms. The sauna and fitness rooms are in the process of being completed, and will be ready soon. In a separate development, the ISG and Boxberg guesthouse have been integrated into internal EMBL phone exchange. Dial 66+ext to reach the ISG, and 65+ext for Boxberg. Im Eichwald’s numbers have not changed.

### The University of Milan is the latest institute to sign a partnership agreement with EMBL’s PhD Programme, bringing the total to 21 partnerships spanning 15 countries.

**What’s in a name?** That which we call a rose – By any other name would smell as sweet. The Chemical Genomics Core Facility shall heretofore be known as the Chemical Biology Core Facility. Information about their services can be found at [www-db.embl.de/jss/EmblGroupsOrg/g\\_248.html](http://www-db.embl.de/jss/EmblGroupsOrg/g_248.html)

### Kinderhaus Christmas Bazaar raises 450 Euros for children on Rodrigues Island.

The proceeds will be used to sponsor monthly fees for two children at the Mauritian island’s “La Cigale” kindergarten, and to buy some new equipment for the school. EMBL parents have also sent a shipment of toys, books and other supplies. EMBL kids can learn more about their new friends on the island thanks to a selection of books that has been bought, and also to a special project where they will exchange photos, drawing, and stories. Gladys Latour, head of “La Cigale”, extends a warm thank-you to those who have participated.

advertise your group’s activities, please contact Ann Thüringer. Your club does not have to receive Staff Association funding in order to participate.

### It’s time again to think about running for the Staff Association committee in Heidelberg.

Six seats are up for re-election in mid-March, so this is your chance to stand for election and represent your segment of the EMBL community for the next two years.

**Reminder!** For those of you already planning your summer holidays, keep July 2 in mind, the date of the 5th annual EMBL Summer Party!

[www.embl.org/~staff](http://www.embl.org/~staff)

## people@EMBL

**Faculty appointments.** Bruno Galy in Matthias Hentze's group has been promoted to staff scientist; Henning Hermjakob has been appointed Team Leader at the EBL.

Jörg Graf has moved from EMBL-Heidelberg's General Services and Petty Cash over to the Purchase Department. Angel Chong, who was an administrative assistant in the Finance Department, has taken over for him.

## awards&honours

Helmut Rudolph from EMBL-Heidelberg's security team has received the *Bundesverdienstkreuz am Bande* for his volunteer work in environmental protection. This high distinction from the German government recognizes Helmut's initiative to set up a lab to allow local gardeners to test their soil, making sure it has the right amount of nutrients. Helmut received the award at a ceremony in Stuttgart on January 26. He'd like to thank EMBL staff for their help with the project.

## Partnership for International Friendship in Heidelberg

Moving to a new city can be exiting, refreshing... and challenging. If you are new in Heidelberg – or if you have been hiding at the laboratory for the past few months and still haven't gone further than the Hauptstrasse – Partners for International Friendship (PFIF) may just be the thing for you.

PFIF is a group organized by volunteers from the University of Heidelberg, the DKFZ, EMBL and the Max-Planck Institutes that aims to give newcomers to Heidelberg help to settle in.

Once a week newcomers can meet up with more long-time Heidelbergers to exchange information, meet people and make new friends – all over kaffee and kuchen. It's a great opportunity to learn more about social and cultural activities taking place in the neighbourhood. They'll even take you on walking tours of the city.

Volunteers Ruth Kraft and Katherine Mechler have been welcoming foreigners to Heidelberg since the PFIF was founded more than 13 years ago. Ruth, for example, has never experienced living in a foreign culture and enjoys the contact she has with people from all over the world. "It's a wonderful opportunity to be able to sit around a table with people from Guinea to China in a single afternoon," she says.

Newcomers to EMBL-Heidelberg (and old-timers, too!) are welcome to attend the meetings, which take place every Wednesday (except for school vacations and holidays) at University guesthouse at Neuenheimer Feld 370, from 5-7 pm. To find out more about the association and see what's on the schedule please visit <http://www.uni-heidelberg.de/university/visitors/pfif.html>. You'll even find a map so you don't get lost!

## music@EMBL celebrates first birthday with new piano

EMBL's music club "music@EMBL" are celebrating their first anniversary – and they have reason to smile. After months of campaigning and fundraising, they've collected enough funds to purchase a brand-new Yamaha grand piano for the Lab.

Their strategy? "Simply playing our music," says Caroline Lemerle, one of the founders of the club. "We gave concerts at every opportunity we could – from alumni events to staff association parties and anniversaries... Whatever was going on we tried to be there." And it paid off. The more people heard them play, the more they appreciated the concerts and were willing to dig into their pockets to keep the music playing.

Donations made by staff were topped up by contributions from Unit heads, the Staff Association, and administration. Future generations of music@embl members can tickle the ivories on the piano which now sits proudly in a corner of the Operon auditorium. The club plans to inaugurate the piano in March with a concerto of four-hands and two-hands pieces. More concerts are planned throughout the year, and new musicians are encouraged to join at any time.

And as if the arrival of the piano wasn't news enough, another gift arrived from Fotis and Sarah Kafatos. They made a generous donation to launch a music library where scores for different combinations of instruments will be made available to EMBL musicians on loan. For more information, email [music@embl.de](mailto:music@embl.de).

## who's new

Ciaran J. Behan (Boulin), Alexandra Boutla (Cohen), Thomas Clausen (Nédélec), David Croft (ENSEMBL), Claudia Dallner (Wittbrodt), Nathalie Decker (Ephrussi), Carolina Ines Eliscovich (Vernos), José Manuel González-Martínez (Serrano), Andreas Hinz (Weissenhorn), Diana Virginia Hofmann (LAR), Phil Irving (Serrano), Andreas Jaedicke (Mattaj), Thomas Luedde (Pasparakis), Nicholas Luscombe (EBI), Raphael Moya (Cipriani), Sergey Tcherniuk (Cusack), Prakash Vincent (Wittbrodt)

## events@EMBL

21 February, 2005

EMBL-Heidelberg

Distinguished Visitor Lecture Series:

Anthony Pawson, Mount Sinai Hospital, Canada

11 March, 2005

EMBL-Heidelberg, Forum on Science and Society: "Religion as a Natural Phenomenon"

Daniel C. Dennett, Tufts University, USA

14 March, 2005

EMBL-Monterotondo

Distinguished Visitor Lecture Series:

Andrew P. McMahon, Harvard University, USA

8 April, 2005

EMBL-Heidelberg, Forum on Science and Society: "The evolution of female promiscuity"

Olivia Judson, Imperial College, UK

For more events, see

[www-db.embl.de/jss/EmblGroupsOrg/t\\_1](http://www-db.embl.de/jss/EmblGroupsOrg/t_1)

EMBL's Science and Society programme is organizing a one-day "Art in Science – Science in Art" festival on July 15. There will be seminars and panel discussions on creativity in the world of science, as well as showings of artwork, music concerts and theatre productions. If your middle name is Leonardo (Da Vinci or DiCaprio...) and would like to contribute, get in touch with Halldór Stefánsson ([stefanss@embl.de](mailto:stefanss@embl.de)).

Long-time colleague Martha Friedman (she's in charge of cleaning and mending lab coats at EMBL Heidelberg) turned 85 on January 20. Best wishes, Martha!