

# EMBL etcetera

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## Surprising allies

Rather than being public enemy No.1, mosquitoes may yield valuable insight into malaria resistance and help to make eradication programmes more effective. EMBL scientists comparing mosquitoes at the genomic level have found that a single gene, TEP1 – which encodes a protein known to bind to and promote the killing of *Plasmodium berghei* malaria parasites in the mosquito's gut – is present in different forms according to the insect's resistance or susceptibility to the disease. An individual mosquito's resistance to malaria depends largely on which allele of this one gene it carries.

The work appeared in the 1 October edition of *Science* and was covered in the BBC's Science in Action podcast on the following day. More on page 4.

## The ATC: your questions answered

pages 2-3



## EMBL sets sail



The Tara Oceans project page 6

## Jorge Cham knows what you're going through...

The creator and artist of Piled Higher and Deeper, the comic strip about the trials and tribulations of doing a PhD, is something of a folk hero among predocs all over the world.

During his 12 October visit to EMBL Heidelberg, when he packed the Operon to the rafters with his Science and Society forum lecture, 'The Power of Procrastination', Jorge also found time to tell predoc Raeka Aiyar a bit about his own experiences as a 'grad student' (as they're called in America, apparently) and hand over some advice about surviving the process. Find out more on page 5.



4

The EMBO Meeting in Amsterdam

8

Ensembl Plants: new genomics portal from EBI

10

A fond farewell: Paul and Manfred





### Moving to the ATC:

- EMBL International Centre for Advanced Training (EICAT)
- EMBL International PhD Programme (EIIP) (dean and administration)
- EMBL Interdisciplinary Post-docs (EIPOD) (administration)
- European Learning Laboratory for the Life Sciences (ELLS)
- Courses and Conferences Office (CCO)
- Office of Information and Public Affairs (OIPA)
- Science and Society
- Resource Development
- Associate Director (Matthias Hentze)
- Photolab
- Personnel
- Finance

Photos: Hugo Neves

## It's finished, it's fantastic, it's funny-shaped... ...it's the Advanced Training Centre!

Life at EMBL Heidelberg has been a bit noisy and dusty during the three years that it's taken to build the ATC, but staff's patience is paying off as groups start moving into their shiny new quarters in the brand new building.

The rumour mill has been going into overdrive lately about who exactly is moving, how we'll be able to find anyone's office in the double helix system, and whether women will be able to wear skirts when crossing the glass bridges: so here are a few frequently asked questions put to rest.

### Which groups will be moving in?

Above right is a list of the groups who'll be getting lovely new offices. All will be housed in the double helix part except the Photolab, which has already moved under the new canteen in the 'casino' part of the building – the green bit.

### What else will be in the ATC?

As well as a 450-seat auditorium and teaching labs, there'll be an e-library, two large seminar rooms for up to 50 people, four meeting rooms and a video conferencing room. In front of the offices will be poster and seating areas, and the top of the double helix will be an indoor and outdoor 'lounge' with refreshment machines and a bar that will be manned during conferences and other events.

### What about confer-

### ence lunches, Lab Day and parties?

The foyer in the helix, at the entrance to the auditorium, has space for fairs, events, parties, finger-food lunches and general mingling. There's a stage for official announcements and ceremonies, and doors will open to the outside terraces.

### How will I find someone in the ATC?

Enter the revolving door which is the main entrance to the ATC – opposite are reception desks which will be manned during events – and enter the stairs or lift on the left or the right. The two helices – A and B – are coloured petrol and yellow respectively. On exiting the stairs or lift, pictograms clearly show the letter and the colour of the helix you're on, as well as the 'segment' numbers you can reach from where you are, for example B06 to B16 if you turn left and B17 to B19 if you turn right.

Alternatively, if you have more time, you can stroll in a leisurely manner along the inner ramp to your destination, and cross the glass walkways connecting the A and B helices in case you find yourself on the wrong one. "It's actually very easy to learn how the system works," says Building Maintenance's Architectural Engineer, Sabine Oertel. "The informal seating outside the offices is colour-coded too, so at a glance you can easily see where you are."

### Will I be able to regulate the temperature in my new office?

It's a very green building. The concrete cooling system in the ceilings allows cold to be stored during the night and dispersed during the day. All the offices have windows and some have doors to the outside, so ventilation is possible, but the cooling system should keep the building at a comfortable temperature. The window blinds are cen-

trally regulated but can also be operated manually.

In the winter, individuals can adjust their own radiators if they're too cold.

### What will happen to the space that is vacated in the main lab?

The old canteen will become a new cafeteria, with an area for Staff Association events and the DVD library. "The offices that will become free in the existing building will, in part, be used to house the rapidly-increasing number of computational biologists at EMBL Heidelberg, and in part to finally allow a more logical organisation of the Core Facilities," says EMBL DG Iain Mattaj.

### Will conference visitors be able to peer into my office and watch me working?

Although the walls are glass, your privacy is assured by strips of frosting.

### Is there a rainy day entrance?

No. Don't forget your umbrella.





Sally Davison



Rosalia Mendez



Gwen Sanderson



Bettina Schäfer



Antje Seeck



Adela Valceanu

# Big changes afoot – and scientists to benefit

## Courses and conferences, 2010 and beyond

While providing a new home for several of EMBL's groups (see opposite), the principal function of the Advanced Training Centre is to provide a new European hub for conferences, courses and workshops in the life sciences. Its new facilities will serve one of EMBL's core missions: training.

As a result, the Course and Conference Office (CCO) has been busy professionalising its services, both to deal with a substantial rise in the numbers of courses, conferences and participants, and also to ensure that scientists benefit most effectively from the fantastic new facilities available.

“Ensuring that everything runs smoothly when a scientific event goes ‘live’ is only the tip of the iceberg,” explains Sally Davison, head of the CCO team, which also consists of conference officers Bettina Schäfer, Gwen Sanderson and Adela Valceanu, marketing officer Antje Seeck and trainee Rosalia Mendez. Two junior conference officers will join in November. “There’s a long preparation period, sometimes taking more than a year, which often goes unnoticed by the participants.”

The team coordinates budgets, creates webpages and registration sites and handles

payment and abstract submissions. They promote the courses and conferences with marketing campaigns, help find sponsors and handle funding applications, all before the event actually kicks off, when they orchestrate the on-site logistics together with the Photolab, the canteen and the EMBL caretakers.

Major changes in the way scientists can expect to go about organising a conference

“We want the scientific organisers to be able to focus entirely on the science”

will ensure the continuing quality of the events for the benefit of all participants, both internal and external. “We want the scientific organisers to be able to focus entirely on the science and not have to worry about anything else,” says Sally. “With the opening of the ATC we’re introducing a new, improved model of organisation. Group leaders are no longer responsible for any deficit; this is now the overall responsibility of EICAT, and any surplus from bigger conferences can also be used to support

smaller courses and workshops.”

The new ATC facilities – which include the centrepiece 480-seat auditorium, four seminar rooms, two training labs and a computer lab – will also be made available to outside scientific organisers. The ‘old’ conference facilities (eg. the Operon and room 202) will be fully available for internal events, in particular the busy seminar programme.

“Running the CCO as a fully accountable, non-profit fund centre increases the transparency of our operations,” says Sally. “External funding helps keep registration fees as low as possible, and there’s now a clear system of fixed fees. Furthermore, we provide a number of fellowships from funds donated by the Corporate Partnership Programme.”

More details can be found in the new EMBL Guidelines for Conference Organisation, available for EMBL staff at [www.embl.de/events/guidelines](http://www.embl.de/events/guidelines).

External readers can check out the CCO webpages at [www.embl.org/events](http://www.embl.org/events).



Above: Look out for the new courses and conferences poster for 2010 (Design: Petra Riedinger)

## Why did the chicken cross the road...?

To get to the new canteen, of course. 31 August saw the opening of EMBL Heidelberg's brand new ‘casino’ in the ATC. With its greater capacity, it will cater for the expanded courses and conferences programme and, from November, hungry nuclear physicists from the neighbouring Max Planck Institute.

The move was an incredible feat of organisation on the part of the kitchen team. Starting on Friday after close of service, they packed up and shipped their entire operation, seamlessly opening again for lunch on Monday at the new site.

Reactions varied, but the diners were all suitably impressed. Anna Maria Subosco from Reception was amazed. “It’s very ele-

gant. I’m not used to having so much space.” Philip Gebhardt and Julia Willingale-Theune of ELLS very much enjoyed their lunch: “I had fish with rice and I think Julia had a curry and some salad,” said Philipp. A peculiar combination, Julia? “I couldn’t find what I wanted. But I’m sure we’ll get the hang of it in a day or two.”

Things went a little smoother for George Reid, formerly of the Gannon group, who had no real problems getting his lunch, “...nothing that the welcoming glass of Sekt couldn’t help with, anyway.” Ioannis Legouras from the Nédélec group was a little concerned about the distance to the new canteen: “When it’s snowing it’ll be hard to come out in a t-shirt.” But he decided that

the extra few minutes needed to put on a jacket would be worth it.

Of course we hope that the new facilities will inspire us in our quest to push back the boundaries of science here at EMBL. “That’s putting a lot of pressure on the canteen,” cautioned predoc Raeka Aiyar. “I’ll let you know how my work goes this afternoon.”



Top: Michael Hansen and Claus Himburg preside over their new kitchen. Below: opening day Sekt





## Surprising allies: malaria mosquitoes

Keep your friends close, but your enemies closer: the old adage may well be good advice in malaria prevention, too, according to a discovery by the Steinmetz group and their collaborators.

“By learning how mosquitoes themselves resist malaria, we may find new tools for controlling its transmission to humans in endemic areas,” says Stephanie Blandin from INSERM, who carried out the research at EMBL as a visitor to Lars Steinmetz’s group with Rui Wang-Sattler from the Helmholtz Zentrum in Munich. Looking at the *Anopheles gambiae* mosquito, a major carrier of the malaria parasite that causes the most severe form of human malaria in Africa, the scientists compared the genomes of those that could resist infection to those that couldn’t, and discovered that the major difference lies in a single section of one chromosome.

This gene, TEP1, encodes a protein which was known to bind to and promote the killing of *Plasmodium berghei* malaria parasites in the mosquito’s gut, and the scientists discovered that their strain of re-

sistant mosquitoes had a form, or allele, of TEP1 that was different from those found in susceptible strains.

To investigate whether this difference in alleles caused the variation in the mosquitoes’ resistance to malaria, the researchers developed a new technique, reciprocal allele-specific RNA interference, inspired by one the Steinmetz group had previously created to study yeast. “It extends the power we gained in yeast: we can go from a whole region of DNA to the actual causative gene, a feat rarely achievable in complex organisms,” says Lars. They produced individual mosquitoes that had one TEP1 allele from the resistant strain and another from a susceptible strain, and then silenced one or other of these alleles. The result: silencing different alleles produced mosquitoes with different degrees of resistance to malaria, meaning that an individual mosquito’s resistance to the malaria parasite depends largely on which form(s) of this one gene it carries.

The findings were published in *Science* on 1 October.

## A boost for ELIXIR

The UK’s Biotechnology and Biological Sciences Research Council (BBSRC) has made a £10million investment in EMBL-EBI to support it as the central hub of the European Life-Science Infrastructure for Biological Information (ELIXIR).

The funding will permit a dramatic increase in the institute’s data storage and handling capacity, placing the UK at the forefront of this multinational initiative.

ELIXIR involves 32 partners from 13 countries and aims to establish a sustainably funded infrastructure for biological information in Europe. It will support life science research and its applications to medicine, agriculture and food security, the environment, the bio-industries and society. The estimated total cost of establishing ELIXIR is significantly more than £200million.

“This is an important milestone,” says EMBL-EBI Director and ELIXIR coordinator Professor Janet Thornton. “In particular it means that we will be able to implement next-generation data-handling and storage solutions to fuel future developments in basic biology, medicine, agriculture and environmental sciences.”

## Looking to the past and the future: The EMBO Meeting



Above: Astronomer Royal Martin Rees. Below: EMBL alumna Malgosia Duszczynk (front) and friends ‘network’ between sessions



Photos: Christine Panagiotidis

Take one Nobel prize winner, 140 speakers, 1,300 attendees, several journalists and an Astronomer Royal to Amsterdam, and what have you got? The EMBO Meeting, the first of which took place in the Dutch capital from 29 August.

The four-day conference – which takes over from former ELSO meetings to bring together life scientists from Europe and around the world – buzzed with talks, debates and new ideas. Among the topics under discussion was how biomedical research could deliver new diagnostics, treatments and vaccines for diseases. Axel Ullrich talked about cancer drug development based on oncogenomics, and Nobel prize winner Harald zur Hausen shed light on the identification of infectious agents causing human cancers and the medical consequences. Svante Pääbo delivered a fascinating talk on Neanderthal genetics, and Ken Holmes celebrated the 50th anniversary of the first elucidation of the 3D structure of a protein, myoglobin, at atomic resolution.

Not surprisingly, the plenary session on stem cells, pluripotency and nuclear reprogramming attracted a huge audience. After the session, the five scientists involved –

Fiona Watt, Rudolf Jaenisch, Shinya Yamanaka, Austin Smith and Hans Clevers – gathered for a press conference with European and US journalists. In a special lecture, the UK’s Astronomer Royal, Martin Rees, gave a glimpse into the cosmos, explaining what happens at the fringes of our galaxy and how likely we are to find other thinking creatures like ourselves.

The meeting was well attended by predocs and postdocs making the most of the opportunities to meet senior colleagues and get career pointers, as demonstrated by the popularity of the job development workshops on the first day as well as Tuesday’s Expanding Career Options lunch. Students and postdocs also crammed into the Pursuing an Academic Career mentoring session, which was organised by the former ELSO Career Development Committee.

“The scientific part was definitely good, but what I found really great were the non-scientific sessions,” commented EMBL pre-doc Christian Hoerner from the Hufnagel group. “When do you otherwise have the opportunity to meet all the EMBO editors and pester them with questions?”

– Yvonne Kaul

# Jorge Cham knows what you're going through...

...and his hugely popular series of comic strips, 'Piled Higher and Deeper' about the trials and tribulations of doing a PhD has a worldwide audience of fans. On a recent visit to EMBL, he told predoc [Raeka Aiyar](#) about his own PhD experience



## Jorge, what exactly did you study during your PhD at Stanford?

My thesis was on robotics: making robots that could go places that are too dangerous for human beings, like disaster areas. We were trying to design them so that they could move around like cockroaches, which is more useful than having wheels in such situations. We made pretty ground-breaking robots, I think; they're sitting on a shelf somewhere right now, though.

## Were you planning to continue with science and become a group leader?

Yeah, that was my life's goal for maybe 11 years. But several things combined to change that. There were a limited number of jobs I could apply for, and I could see my career prospects decreasing while the popularity of the comics was increasing. I was having a lot of fun doing the comics – they

started as a regular contribution to the Stanford Daily, and just got bigger and bigger – so I thought I'd try it full-time. It was something I got really passionate about.

## What inspired you to start drawing the comics in the first place?

I was really busy, so I shouldn't have started them, really. It was procrastination, basically. Also, everyone at Stanford seems to have something different and cool that they get into, so it was partly that, and I also felt that doing a PhD is a pretty unique experience that hadn't been documented anywhere else.

## What do you think is so hard about doing a PhD? And what makes it so easy for PhD students to procrastinate?

For me I think it was just feeling overwhelmed. Not only on an intellectual level – feeling that you're not smart enough – but also because of the huge number of things you could be doing at any given time, so that at some point you feel like your head's gonna pop.

## Yeah, it's kind of like the ceiling's gone.

Yeah, the floors are gone, the walls are gone... everything's gone. So you end up associating a lot of guilt and negative feelings with research, and you forget what was ex-

citing about it, which makes it easy to procrastinate. There's also the 'imposter' syndrome, which is where you feel as if you're fooling people and you don't really deserve to be here.

## How did you cope with all that?

Part of it is realising that most students feel the same way; they just don't let it out because they think they're not supposed to show weakness. I had a professor who helped us figure out that a lot of the pressure you put on yourself is imaginary. You use a lot of language like, "I *have* to graduate, I *should* know that already, I *have* to publish more" – all goals that no-one's actually *making* you strive for. You're doing everything because you want to do it. Once I realised this, it was much easier to say no to things. You have more control than you think.

## What advice would you offer to EMBL's PhD students?

Read PhD Comics!

## That's already number one on my list...

Well, I'd say believe in high goals, but low expectations – meaning aim high, but don't beat yourself up if it doesn't happen.

'Piled Higher and Deeper' can be found at [www.phdcomics.com](http://www.phdcomics.com).

## How stem cells make skin...and how serendipity makes a paper

The story of Claus Nerlov and his favourite genes, *C/EBPα* and *C/EBPβ*, is of a long, successful relationship spanning more than 15 years. This September was an especially bumper month in Monterotondo with the publication of two papers in *NCB* and *PNAS*, the second arising quite by chance when some of Claus' apparently disappointing results turned out to be crucial for head of outstation Nadia Rosenthal's team.

*C/EBPα* and *β* have risen to fame as key regulators of the decision between self-replication or differentiation facing stem cells in diverse parts of the body. Both are expressed in skin, but loss of either *C/EBPα* or *β* alone has no real effect on skin development. Claus

and his team went for the double whammy – knocking out both genes at once – producing mice with such poorly developed skin that they died of dehydration shortly after birth, unable to form a proper barrier. Through this they showed that *C/EBPα* and *β* are master controllers of the switch from the stem cell to skin programme, sitting together at the top of a hierarchy of genes responsible for skin differentiation.

In the meantime, the group had also been looking, based on a rise in *C/EBPβ* levels in response to inflammation, for new roles for *C/EBPβ* in immune system development. They had engineered a mouse unable to generate this boost in *C/EBPβ*, but, to their dis-

may, saw almost no immune system defects. The only exception was that macrophages seemed unable to polarise: whereby, after engulfing bacteria and clearing up the debris at an injury or infection site, macrophages switch from releasing pro- to anti-inflammatory factors, promoting repair.

However, this raised an interesting possibility for Nadia's group's research into muscle regeneration. Her team used the line to show that macrophage polarisation was essential for proper repair of muscle tissue after injury to avoid scarring. At a stroke, the two teams confirmed the importance of macrophages in repairing muscle tissue and discovered the genetic basis of polarisation!





# Setting sail: EMBL takes to the oceans

On 5 September 2009, after months of careful planning and preparation, a very special ship set sail from Lorient in the Brittany region of France to a riotous send-off by a crowd of more than 5,000 spectators and members of the international media. The vessel was Tara, a 36-metre, 120-ton schooner; her voyage will last three years and make about sixty different stops across the globe; and the brains behind the enterprise is EMBL's very own Eric Karsenti, who's coordinating a team of scientists from 50 laboratories in 15 countries with the help of the president of the Tara Expeditions foundation, Etienne Bourgois.

The Tara Oceans adventure begins as Eric finishes his 24-year stint at EMBL, 11 of those as head of the Cell Biology and Biophysics Unit, and can at last find the time to devote his efforts to one of the most critical questions of our time: will marine life be able to survive major ecological upheavals such as global warming and pollution? Are we heading towards a huge and potentially devastating transformation of ocean life as we know it?

"I felt the need to address disturbing questions concerning the evolution of our planet and its future," he says. "The ocean concerns us all, because the ocean gave birth to life, and life on earth still depends on it. Our fu-

ture depends on the safeguarding of the sea."

To this end, Eric and Etienne have gathered a first class team of scientists, including EMBL staff past and present, bringing together a unique international and multidisciplinary scientific collaboration of oceanographers, biologists, geneticists, and physicists from the best laboratories in the world. They'll study biodiversity and climate, the functioning of marine ecosystems

*"The ocean gave birth  
to life, and life on earth  
still depends on it"*

*– Eric Karsenti*

and life's origin and evolution. "The microscopic life in the oceans remains one of the least explored fields of science, while the wealth of its biodiversity is considerable," says Eric.

On her three-year, 150,000 km journey, Tara will make stops at some of the most diverse environments, from the tropical coral reefs to Antarctica and the isthmuses of the Middle East to the Northwest Passage. For her crew of 14 people, including five scientists at any one time, each day will involve about 16 hours of sailing and 8 hours of sta-

tionary sampling using some of today's most advanced technologies.

Among the EMBL scientists doing research on Tara will be Detlev Arendt, Ernst Stelzer and Peer Bork, while alumnus Emmanuel Reynaud, now at University College Dublin, will be coordinating the onboard Tara Oceans Marine biology Imaging platform, which includes EMBL's SPIM technology. The EMBL imaging platform supervised by Rainer Pepperkok and Jan Ellenberg provides support for the development of high throughput FISH analysis of plankton species, while Jeroen Raes is coordinator for bioinformatics, Uros Krzic oversees the onboard database and Stephanie Kandel-Lewis is in charge of sample logistics – and, of course, Eric himself will be joining the voyage at several stages.

"The accomplishment of Tara Expeditions is a team's work at the service of the planet," says Etienne Bourgois, who, as company director of agnès b., founded Tara Expeditions in 2004 with agnès b. as lead partner and oversaw the successful Tara Arctic expedition of 2006-8. "It's a collective quest to understand what's happening climate-wise and to explain it in simple terms. This exceptional ship must pursue her mission as ambassador of the world's citizens."



L-r: Eric, Etienne and Tara Oceans project coordinator Romain Troublé at a press conference before the expedition began; the departure at Lorient on 5 September; Etienne, agnès b. and Eric

For more information about the Tara Oceans expedition and to track the ship's progress during her voyage, visit <http://oceans.taraexpeditions.org>

## Alumni meet in Portugal



The 5th Iberian chapter meeting – the first to be held in Portugal – took place on 2 October at the Institute for Molecular and Cell Biology (IBMC) in Porto. Participants were largely EMBL Portuguese alumni as well as IBMC staff, who gathered to listen to talks on neurodegeneration, kinetochore-microtubule interactions and

Clockwise from left: Luis Ferreira Moita, Tiago Outeiro, Mark J. van Raaij, Paulo Pereira, José Pereira Leal, Anne-Claude Gavin, Paula Sampaio, Elsa Logarinho and Paula Sebastião

RNAi-based dissection of innate immune responses.

IBMC Director Claudio Sunkel, who is also the EMBL Council delegate and the EMBC Vice President, opened the meeting with an introduction to the IBMC and to EMBL's role in European science.

Following EMBL group leader Anne-Claude Gavin's honorary lecture on biochemical approaches to biomolecular networks, the alumni enjoyed a tour of Porto and a wine-tasting.

### Can she fix it? Yes, she can!

The Iberian chapter meeting was hosted and organised by Paula Sampaio, Head of IBMC's Advanced Light Microscopy Facility, with help from Paula Sebastião, Assistant Professor at the Escola Superior de Tecnologia do Mar de Peniche.

Paula Sampaio, who is often seen walking through the corridors of the IBMC with a screwdriver, was a visiting scientist in the CBB unit's Gonzalez Group from 1995 to 2001. While responsible for maintaining the first Leica confocal mi-

croscope at EMBL and teaching scientists how to use it, Paula was also running the fledgling IBMC's server on her laptop! "EMBL gave me an overview of how a big institute works, and this has been very useful to help to improve IBMC organisation," she says. "Besides inspiring me to build the microscopy unit at IBMC, it was a great experience scientifically."

It was her interest in technical equipment – microscopes in particular –

which led her to set up the IBMC's open access Advanced Light Microscopy Facility in 2004, where they now have 100 users a year. Paula is also a Senior Scientist in the lab of IBMC Director Claudio Sunkel. "It has been very important for me to divide my time between services and research," she says. "I don't think you can really understand and appreciate the requirements of the facility users, and push forward the need for microscopes, if you're not doing research."

## "La cuisine, c'est de l'art"

A familiar face from the EMBL canteen has gone on to great things following his training in Heidelberg's most infamous institutional kitchen.

Aimé-Jules Fozou (right) spent 2005 to 2008 under the watchful eye of Claus Himburg as part of his studies to become a chef. At EMBL he honed his skills in sautéing, searing and simmering enough for 800 hungry mouths every day – but now he's perfecting his art on a slightly smaller scale as a chef at 'Restaurant Neckarschänke' in Wieblingen.

"At EMBL I learned how to work with people from different cultures," says Aimé-Jules, who's from Cameroon. "The cocktail of nationalities also helped me forget that I'm a foreigner myself."

While his former colleagues at EMBL are

getting used to their new surroundings in the ATC canteen, at Neckarschänke Aimé-Jules' specialities are German dishes. "I've always loved experimenting with spices and ingredients, and making food into pieces of art," he says. "The way a dish looks is just as important as its taste."

Aimé-Jules feels his training at EMBL made it possible to get the profession he has dreamt of. "I'm very thankful for all the support I got from Claus, and to the many true friends I made."

*We want to hear from you! Tell us about your personal or scientific achievements, an interesting event in which you are involved or give us feedback on alumni matters at [alumni@embl.org](mailto:alumni@embl.org).*



Photo: Marietta Schupp

### Please mark your diaries:

- **6 November:** Deadline, John Kendrew Young Scientist Award 2010.
- **14-15 December:** 14th Alumni Association board meeting, EMBL Hamburg. E-mail [alumni@embl.org](mailto:alumni@embl.org) by 26 November with issues for consideration.



## New plant genomics portal to support research into improved crops

A new, freely available web resource launched by EMBL-EBI and Cold Spring Harbor Laboratory will make it easier for scientists to improve the productivity and health of crops – an important step towards meeting growing global food requirements in our changing climate.

The launch of Ensembl Plants allows researchers worldwide to access and visualise the results of genome-scale experiments in different plant species, and to pinpoint the genetic basis of beneficial characteristics such as drought and pest resistance.

The first release includes genome data from research funded by the Biotechnology and Biological Sciences Research Council (BBSRC) at the University of Oxford's Wellcome Trust Centre for Human Genetics and University of Bath. Researchers there have sequenced the

genomes of 17 strains of the thale cress *Arabidopsis thaliana*, an important reference point for applied plant research, which will serve as a pilot for the application of high-throughput sequencing methods to plant genomes.

Paul Kersey, leader of the Ensembl Genomes team at EMBL-EBI, said: "Ensembl Plants makes the results of genome-scale experiments available to the whole scientific community. The interface is familiar to researchers as it is already in use for the visualisation of information about the genomes of other species, making this new resource very accessible."

The launch of Ensembl Plants completes the set of new Ensembl-powered portals – for bacteria, protists, fungi, and invertebrate metazoa – launched by EMBL-EBI during 2009.

<http://plants.ensembl.org>

## Prize for Peer

Peer Bork has won one of the largest international prizes in science, the Royal Society and Académie des Sciences Microsoft Award, for his research on the human microbiome and his work using computational data analysis to check drugs for additional targets. Peer, "a problem-solver in the noble sense, applying in an extremely productive and highly rigorous manner state-of-the-art methods in the computational analyses of large-scale biological data", according to Académie des sciences member Jean Weisenbach, will receive his award at a ceremony at the Palais de l'Institut de France, Paris, on 17 November.

"The field of bioinformatics is not one that receives credit easily, so it's wonderful to have this work of many decades acknowledged," says Peer. "Our research holds great promise for untangling the molecular basis of a number of diseases."

## Industrial strength

Small to medium-sized enterprises (SMEs) from across Europe benefited from EMBL-EBI's mission to support industry at the 3rd Annual Information Workshop on European Bioinformatics Resources for SMEs in Vienna on 3-4 September. The workshop was jointly funded by five EU projects coordinated by EMBL-EBI – CALBC, ELIXIR, EMBRACE, ENFIN and SLING – and hosted by Austria's Wirtschaftsservice.

Responsible for over two-thirds of Europe's employment and GDP, SMEs can get much out of the freely available data resources, tools and services provided by the EBI and its collaborators. Several of the institute's scientists made the trip to contribute with talks and demos, and topics this year included small molecule resources (ChEMBL and ChEBI), proteomics, literature and web services, and patent searching services such as SLING, which is provided jointly by EMBL-EBI and the European Patent Office.

A fourth meeting is planned for next year, at a venue yet to be identified and with the support of an appropriate regional agency. Expressions of interest are welcome! Please contact EMBL-EBI's Industry Programme Manager Dominic Clark at [clark@ebi.ac.uk](mailto:clark@ebi.ac.uk).

[www.enfin.org/page.php?page=sme\\_meeting\\_2009](http://www.enfin.org/page.php?page=sme_meeting_2009)

– Lucy Patterson

## Pharma 2.0: open chemistry at the EBI

With EMBL-EBI's acquisition last year of the Galapagos NV drug discovery databases – now called the ChEMBL database and maintained by John Overington's team – cheminformatics is becoming an increasing priority for EMBL. Now pharmaceutical giants such as Novartis, who recently released the results of a huge genomic analysis of type II diabetes, and GlaxoSmithKline, who gifted 300 valuable cancer cell lines to public cancer research, are joining the trend towards making data freely available online.

As part of a growing trend in 'crowdsourcing', big pharma seems to be realising that by releasing once top-secret data into the public domain they can draw on the talents and insight of the global research community to accelerating the process of innovation at 'pre-competitive' stages of drug development.

"Historically, developments in chemistry were closed and protected, due to the potential impacts of discovering the next big

drug," explains EMBL-EBI's Christoph Steinbeck who, together with John Overington, is currently incorporating this valuable new information into the EBI resources. "With the development of the open source movement from the late 1990s onwards, this has changed and the sharing of software and information is now perceived as something beneficial rather than dangerous."

As a knock-on effect, such data will provide a massive boost to public drug-discovery projects, for example those tackling neglected diseases of little commercial interest to industry.

An interview with Christoph Steinbeck detailing their progress, including how they are designing a unique open source chemistry search engine, is available on the EMBL chemistry pages at [www.embl.de/research/chemistry/index.html](http://www.embl.de/research/chemistry/index.html).



# Istanbul, not Constantinople...

“Every time I hear or see the word ‘Istanbul’, I get that song stuck in my head again!” lamented one conference-goer at 16-21 August’s European Crystallographic Meeting (ECM2009), held in the continent-spanning former seat of the Ottoman Empire. But a catchy tune by They Might Be Giants (or The Four Lads, depending on your age) wasn’t enough to detract from the great programme of talks, workshops and microsytosia taking place at the city’s Askeri Müzesi (Military Museum).

The six day event was the 25th general meeting of the European Crystallographic Association (ECA), and as in previous years it boasted some huge names as its keynote lecturers and covered the entire gamut of topics in the field – macromolecular, physical and chemical crystallography, materials and minerals and experimental and computational techniques. In keeping with the surroundings, there

was also a satellite conference on Symmetry and Crystallography in Turkish Art and Culture, which examined the crystallographic aspects of such local specialities as carpets, ornaments and kilim frames, and for the first time the ECA also held a dedicated meeting for young crystallographers under 35 years of age.

Scientists and staff from four of the five EMBL sites convened in the city, with many helping to man the exhibition stand when they weren’t presenting posters or giving talks. A dinner kindly hosted by Hamburg’s Thomas Schneider enabled all the EMBLers to catch up on the news from their colleagues in a more relaxing setting.



Above: EMBL-EBI’s James Watson on stand duty. Top: whirling dervishes performed as part of the social programme



## A fertile collaboration

EMBL scientists have been getting up close and personal with a sperm protein to discover a new way to crack the histone code – and in doing so, they might also shed light on male fertility problems.

In the body, sperm are the only cells that swim and, as speed is crucial to fertility, have developed their own ways to become exceptionally streamlined. Their chromatin is more compact than usual, which reduces the size of the sperm head and makes it more hydrodynamic.

Researchers at EMBLs Heidelberg and Grenoble, together with colleagues from the Institut de Biologie Structurale (IBS) and the Institut Albert Bonniot (IAB), both also in Grenoble, found the key to this in Brdt, a protein only found in developing sperm cells.

“If Brdt is absent, the extra compaction doesn’t take place, and the sperm head is less streamlined,” explains Saadi Khochbin of the IAB, who worked with Christoph Müller’s group at EMBL Heidelberg and EMBL Grenoble alumnus Carlo Petosa, now at IBS, on the discovery. “Male mice lacking Brdt are infertile.”

Brdt directs tight re-packaging of sperm DNA by histone binding. However, the way

it binds – by docking to two acetyl tags simultaneously via just one protein domain – is an important new discovery for epigenetics. “We were very surprised,” says Christoph. “We saw that the domain forms a pocket, binding both tags at once.” It was previously assumed that individual tags are bound by individual domains, so this new finding reveals new complexity in decryption of the histone code.

But why might this be important for hypercompacting sperm DNA? “One idea is that histones acquire tags sequentially, and only compact when fully tagged,” says Christoph. “Brdt binds to the last two tags in this sequence, making that the very last step in the process – the final signal for hypercompaction to begin.”

“We re-examined the structures of other chromatin-associate proteins and saw that this tag-binding mechanism is likely to be used by them, too, furthering our understanding of how the histone code is read,” adds Carlo.

As well as furthering scientists’ understanding of epigenetics, the work, which appeared in the 1 October issue of *Nature*, could help to understand problems of human male infertility.

## Faculty retreat

The annual faculty retreat at the Golfhotel Stromberg on 16-18 September focussed on the new EMBL Programme for 2012-2016, with EMBL DG Iain Mattaj asking group and team leaders to contribute their ideas for the future direction of the institute, in both research and service activities.

EMBL runs on a five-year programme which is approved by Council, and a corresponding Indicative Scheme outlines the plans for the period’s budget. The programme is put together with extensive input and support from Heads of Units, faculty and coordinators of services, training, outreach and technology transfer activities. Evaluations of EMBL units by the Scientific Advisory Committee (SAC) also provide crucial input.

A first draft of the new EMBL Programme 2012-2016 will be reviewed by the SAC in March 2010. If any faculty member has any ideas, particularly about areas you feel are emerging and how they might fit into the context of EMBL, contact your Head of Unit.



Photo: Bernd Rebrahn

## Berliner Weiss(e)

Two pieces of Hamburg furniture fly the nest

Paul and Manfred

By the copious eating, drinking, music and (table)dancing that took place at EMBL Hamburg at the end of a hard week's work on Friday 2 October, you might have been forgiven for thinking that a celebration was underway. Quite the opposite: the outstation was saying goodbye to two of its most famous characters, group leaders Manfred Weiss and Paul Tucker.

Manfred will be the first to go at the end of October, and is embarking on a new episode in his career as beamline scientist and group leader at the Helmholtz-Zentrum Berlin für Materialien und Energie. "I'll be working alongside another co-head to build up and expand the institute's protein crystallography facility," he explains.

Manfred also hopes to have more time to pursue other research projects. "I've been so involved in extra activities, such as sitting on various EMBL committees and organising

German Society of Crystallography conferences, but I hope that in my new job I'll have more time to focus a bit more on my own research."

It was officially Manfred's party rather than Paul's, who doesn't retire until December, but such a pillar of the community deserves to have several leaving dos. After 11 years at EMBL Hamburg, Paul is looking forward to moving permanently to the Netherlands, where he has a home, and to having more time to pursue his interest in graphic design, specifically the representation of science through graphics and animation. "There's a lot missing in terms of visual impact when it comes to scientific data," he says. "I want to learn how to use the relevant tools and software while I still have the capacity to learn something!"

Paul's quite an old hand (no offence, Paul) when it comes to EMBL – he was based at the

main lab in Heidelberg when he started his group leadership in 1985, moving to Hamburg in 1998. "My experiences at the two sites were very different," he says. "In Heidelberg a lot of time was spent building up the facility – I was running the X-ray lab there and developing 2D detector software – but Hamburg was the first time I was able to build a substantial group and really concentrate on the structural biology research that interested me. It was a good move, scientifically."

Paul's official departure will be heralded by a scientific symposium he's hosting at the beginning of December, and beyond that he'll still keep a finger in the scientific pie with his involvement in following up on the EU Vizier project. Manfred, though, is nearly out the door. "I'll miss EMBL for its stimulating international environment, as well as the flat hierarchies and the lack of bureaucracy," he says. "Little things like that certainly make life easier."

Their colleagues at EMBL's most northerly outstation are keeping a stiff upper lip as they bid farewell. "It's not going to be the same without them," despaired team leader Jochen Müller-Dieckmann at the party, wringing his hands. "Still," he added, cheering up as he spotted the champagne heading his way, "out with the old, in with the new, eh?"

## A rising star

EMBL Heidelberg welcomed European Contest for Young Scientists (EUCYS) winner Cecilia Thomas in August, whose project, 'Antimicrobial peptides – the new weapon against multiple drug resistance?' won her a week at the institute.

First, though, Cecilia – who's Danish – spent the EUCYS final in Copenhagen explaining her project to the judges and to HRHs Prince Joachim and Princess Marie under the glare of the paparazzi. "When all that was over I was really excited about coming to EMBL," she says. "It's an almost perfect match to my interests."

What she hadn't expected was the new perspective meeting real scientists would give her. "I met people from all over the world who were passionate about science

and eager to pass on this passion. I learned so many things and got to see stuff that had a biology geek like me practically jumping up and down with excitement. It gave me a unique insight into how the day-to-day life of a scientist really is."

Cecilia's now back in Copenhagen studying for a degree in human life science engineering. "I want to come back at some stage to become part of the special atmosphere and exciting science at EMBL," she says. "I'm now even more convinced that this field is where I belong."



Photo: Marietta Schnupp

Right: Jan Medenbach shows Cecilia some of his cutting-edge data

## Joining forces

EMBL predocs got together with PhD students from DKFZ, MPI, ZMBH, HBIGS and CellNetworks to hold the first Heidelberg Forum for Young Life Scientists at DKFZ on 10-11 September. The programme contained six sessions, with each institute organising one each, and EMBL's segment, 'Through the looking glass: Understanding Molecular Biology through Evolution', had Nobuhiko Tokuriki from Israel's Weizmann Institute of Science as keynote speaker. EMBL group leader Michael Knop gave a presentation, as did students Tugce Aktas, Iben Møller-Hansen and Katarzyna Mleczko-Sanecka.

"It was great to get together with students from the other institutes and hear about the interesting work they're doing," commented Uschi Symmons from the EMBL organising committee. "We hope to continue this collaboration in the future by organising some courses and workshops together."





☞ The **Molecular Medicine Partnership Unit (MMPU)** invites all interested scientists to its 5th Open Research Day, which will take place at EMBL Heidelberg on 27 November. The latest research in molecular medicine will be presented by physicians from Heidelberg University's Medical Faculty and scientists from EMBL. See [www.embl.de/research/partnerships/mmpu/index.html](http://www.embl.de/research/partnerships/mmpu/index.html) for details.

☞ Registration is now open for the following EBI hands-on bioinformatics training course to help you make the most of your data. 'Small molecule bioactivity resources at the EBI' will take place on 25-29 January; registration deadline is 11 December 2009. See [www.ebi.ac.uk/training/handson](http://www.ebi.ac.uk/training/handson) to register and for programme details of courses to be held in 2010.

☞ EMBL Heidelberg had a visit from the Caribbean on 7-8 October, when **Francis A. Fakoya**, Associate Professor of Histology and Cell Biology at St. George's University School of Medicine in Grenada, came to learn about EMBL with a view to establishing a biomedical research lab in the region.

☞ This year's **Science & Society Conference**, 'Food, Sustainability and Plant Science: A Global Challenge' on 6-7 November 2009 at EMBL Heidelberg will examine the future of sustainable agriculture from the perspectives of plant science, technology and society. How can science contribute to addressing global challenges such as the



requirement to feeding a growing world population, climate change and biological threats to crop yields? How can the public make informed decisions as to the safety and effectiveness of new technologies that hope to overcome the battle against hunger? For details, visit [www.embo.org/events](http://www.embo.org/events).

☞ **EMBL Australia Council** met for the first time on 6 October under the chairmanship of Richard Larkins, the former Vice-Chancellor and President of Monash University. The Council will meet every other month and has established a Strategy and Finance Committee to deal with operational issues related to the EMBL-Australia collaboration.

☞ The application deadline for the next round of **EIPOD selection** is 31 October. Selection will be completed in January 2010, with projects starting shortly afterwards. Applications should be made online at [www.embl.org/eipod](http://www.embl.org/eipod).

☞ This year's PhD symposium at EMBL Heidelberg will be preceded by the first **1st NIBB-EMBL PhD Mini-Symposium** jointly organised by the

EMBL PhD and Visitors Programmes for ten predocs from Japan's National Institute of Basic Biology and Nagoya University on 28 October. The Japanese students will present their work with talks on genome dynamics, plant organ development and germ cell biology, among other things. The **11th EMBL International PhD Symposium**, 'Puzzles in Biology – putting the pieces together' will start the following day on 29 October. Visit [www.embl.de/nibb\\_predocs](http://www.embl.de/nibb_predocs) and [www.phdsymposium.embl.org](http://www.phdsymposium.embl.org) for details.

☞ On 21-22 September, the first stakeholder meeting of **Euro-BioImaging** ([www.eurobioimaging.eu](http://www.eurobioimaging.eu)) took place at EMBL Heidelberg. Coordinated by EMBL and the European Institute for Biomedical Imaging Research (EIBIR), the project aims to establish a pan-European imaging infrastructure for biological and medical research as part of the ESFRI process. The meeting gathered representatives of the scientific community, funding and governmental organisations and industry to discuss potential participation and the content and structure of the project.

☞ On 11-16 September, EMBL was represented on the EIROforum stand at the annual **European Union Contest for Young Scientists (EUCYS)** in Paris. While *Science in School* editor Marlene Rau sat on the judging panel for the best scientific project, EMBL predoc Jacopo Lucci gave an EIROforum lecture.



Photo: Christoph Schlude

## Plans for Centre for Structural Systems Biology

Scientists from the many disciplines of structural biology came together for the 1st International Symposium on Structural Systems Biology on 24-25 September. About 250 participants attended the conference at the University of Hamburg, which was supported by the European project INSTRUCT, which aims to coordinate infrastructures in structural biology across Europe.

Scientific sessions gave delegates the opportunity to discuss present and future challenges in systems biology, key technologies and applications, computational structural systems biology, and aspects of biological systems. The conference was also a starting

point for the planned Centre for Structural Systems Biology (CSSB), whose committee took the opportunity to discuss the next organisational steps of this new project.

The CSSB will be built on the DESY campus, home to EMBL Hamburg. This collaborative research facility will involve about eight research groups focusing on infection biology, systems and structural biology, taking advantage of current and planned infrastructures and marking the beginning of a new age of research in the city. Thirteen partners including several universities, EMBL and the Helmholtz and Leibniz institutes have expressed an interest in joining.

**28 October EMBL Heidelberg**

**Symposium:** 1st NIBB-EMBL PhD Mini-Symposium

**28 October EMBL Heidelberg**

**Science & Society:** Train your mind, change your brain. Matthieu Ricard, Nepal

**29-31 October EMBL Heidelberg**

**Symposium:** 11th International EMBL PhD Student Symposium

**30 October EMBL Monterotondo**

**EMBL Distinguished Visitor Lecture:** Chromatin and stem cells. Amanda Fisher, Imperial College London

**21-28 October EMBL Hamburg**

**Course:** M2M-2009 (Methods for Macromolecular Crystallography): From measurement to model

**6-7 November EMBL Heidelberg**

**Conference:** 10th EMBL/EMBO Joint Conference on Science and Society

**8-13 November EMBL Heidelberg**

**Course:** EMBO Practical Course on HT microscopy for systems biology

**9-13 November EMBL-EBI**

**Course:** An introduction to EBI proteomics tools

**14-16 November EMBL Heidelberg**

**Conference:** EMBL workshop on translating behaviour: Bridging clinical and animal model research

**18-19 November EMBL Heidelberg**

**Conference:** EIROforum TT Conference Technology Transfer and the European Research Area

**23-26 November EMBL Monterotondo**

**Winter Council Meeting**

**25-27 November EMBL Heidelberg**

**Course:** Introductory workshop on bioinformatics for high-throughput sequencing

**27 November EMBL Heidelberg**

**MMPU's 5th Open Research Day**

**2-3 December EMBL-EBI**

**Heads of Units/Senior Scientists Mtg**

For more details about these events and more, visit [www.embl.org/events](http://www.embl.org/events)

**Ralph Martens** will take over as Administrative Director when Bernd-Uwe Jahn retires in December, and is already enjoying EMBL's "special working atmosphere" in the handover period. Previously a director at the International Criminal Court, Ralph has an MBA from Giessen's Justus-Liebig University. He has held top managerial positions in the food, publishing and conference industries, including heading a company involved in the research of applied biotechnology in food ingredients in the US, and has appeared in the 'Who's Who of Leading Executives of America'.



**Orsolya Barabas** joins Heidelberg's SCB unit as group leader on 1 November. For the past four years she has been a postdoc in the Laboratory of Molecular Biology at the National Institute of Diabetes, Digestive and Kidney Diseases, NIH, USA, having gained her PhD in structural chemistry at the Hungarian Academy of Sciences in Budapest in 2005. During her studies she spent a year at EMBL Hamburg training in X-ray crystallography. Her group will study the mechanism of DNA recombination and its applications for research and therapy.

EMBL Hamburg's newest group leader is **Rob Meijers**, an alumnus who gained his PhD at the outstation from the University of Amsterdam in 2001. Rob went on to work as a postdoc at the Dana Farber Cancer Institute, Boston until 2006 and then as a staff scientist at the Synchrotron Soleil, Saint Aubin, France. His group will study the structural aspects of the recognition, activation and signalling of cell surface receptors using a range of methodologies including cell biology, protein biochemistry, protein engineering, X-ray crystallography and bioinformatics.



**Sonia Furtado** takes over from Anna-Lynn Wegener as EMBL's new press officer on 1 November. Half Portuguese and half English, Sonia has a degree in biology from Lisbon University and a master's in science communication from Imperial College London. She worked in Lisbon Zoo's education department for seven years.

## awards&honours

Cell Biology and Biophysics Unit group leader **Ernst Stelzer** and former group leader **Jochen Wittbrodt** have been awarded the Heidelberg Molecular Life Science Investigator Award from Heidelberg University's Cluster of Excellence for their interdisciplinary work on creating a 3D digital visualisation of a zebrafish embryo. Jochen, now head of the Dept. of Molecular Developmental Biology and Physiology at the Institute of Zoology, also receives the Otto-Mangold-Preis 2009 from the Gesellschaft für Entwicklungsbiologie.

Genome Biology Unit group leader **Andreas Ladurner** has been awarded the 2009 Young Investigator Award, financed by the Schering Foundation, by the German Society for Biochemistry and Molecular Biology. The prize is awarded every two years and was given to Andreas for his team's research on ADP-ribosylation and metabolite-chromatin interactions. He accepted his award with a lecture at the Aachen Meeting of the GBM on 29 September.

Head of EMBL Monterotondo **Nadia Rosenthal** has been made a Doctor honoris causa of Paris' Université Pierre et Marie Curie. The award ceremony will take place on 26 March.

Developmental Biology Unit group leader **Francesca Peri** has been awarded a Starting Investigator Grant by the European Research Council.

