

EMBL etcetera

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Mind over matter

Over 350 participants from around the world packed into the EMBL Advanced Training Centre 4-5 November for the 12th EMBO|EMBL Science and Society conference, 'Making Sense of Mental Illness'.

The programme, which included experts from fields as diverse as sociology, neuroscience, medicine and policy, provided a platform for lively interactions between speakers and members of the audience.

Focus areas included the biology of mental illness, ways of treatment, the societal impact, and what might be done to change attitudes.

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To 2012 and beyond...

Why important developments across EMBL sites means 2012 should be year to remember



Green light for five-year programme, page 2



What's in store for 2012? page 10



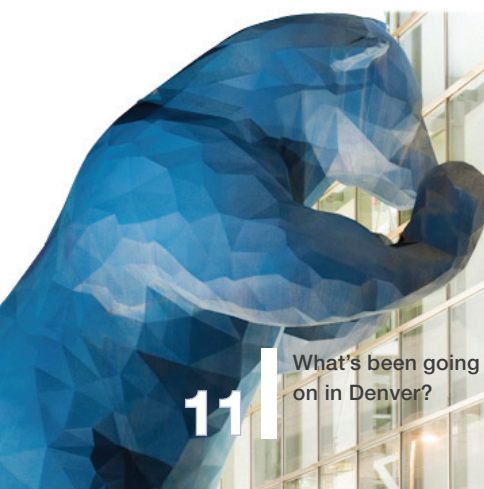
New funding for ELIXIR, page 3

Silence is golden

Cross-site teamwork results in groundbreaking insight into genome integrity

Scientists from three EMBL sites pooled resources to carry out research which sheds light on how the cell's natural defence mechanisms employ a group of proteins known as Piwi to ensure genome integrity. Anton Enright (EMBL-EBI), Donal O'Carroll (EMBL Monterotondo) and Ramesh Pillai (EMBL Grenoble) have maintained close contact since meeting in 2007 and now plan further interactions between their groups.

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Meet the new scientific coordinator of EICAT

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CSI, but not as we know it



Delegates meet at the EMBL Advanced Training Centre



Iain Mattaj bids farewell to Reinhard Lühmann

Council approves five-year programme

Approval of EMBL's budget and the scientific programme for the coming five years was the headline news from an action-packed Winter Council Meeting in Heidelberg

The programme, which has been on the drawing board for over a year, sets out plans for EMBL's research, services, training, outreach, technology development and transfer, administration and integrative function in the European research landscape. An indicative scheme, which foresees an annual increase of 2%, was endorsed, with a review scheduled for the end of 2013.

"The unanimous approval of the programme reflects the excellent performance of EMBL staff and the effort put into the programme document and in communicating its importance to member states," says Iain Mattaj, EMBL Director General.

A number of important staff appointments were confirmed at the meeting, including the appointment of Philip Avner as Head

of EMBL Monterotondo, the promotion of group leaders Ewan Birney and Rolf Apweiler as Associate Directors of EMBL-EBI – see below – and group leaders Florent Cipriani (Grenoble), Wolfgang Huber (Heidelberg) and Dmitri Svergun (Hamburg) as senior scientists – see page 12.

"The unanimous approval reflects the excellent performance of EMBL staff"
– Iain Mattaj

In a positive review by the Scientific Advisory Council (SAC), EMBL Hamburg was praised for its substantial contribution to software development, synchrotron instrumentation and using structural biology techniques to address fundamental biological

questions. Leadership at the outstation and the teams working on the EMBL@PETRA3 project – developing beamlines on the most brilliant storage-ring-based X-ray radiation source in the world – were commended for their achievements.

Other important developments included a proposal by the Spanish delegation to transform the EMBL-CRG partnership for systems biology into an EMBL outstation in Barcelona, and elections, which saw Eero Vuorio (Finland) and Claudio Sunkel (Portugal) re-elected Chair and Vice-Chair of Council respectively, while Reinhard Lühmann stepped down from his position as German scientific delegate after 11 years of service. Reinhard was also Vice-Chair of Council before he stepped down.

New leadership at Monterotondo and Hinxton



Philip Avner joins EMBL Monterotondo from the Institut Pasteur and succeeds Nadia Rosenthal

Philip Avner has been appointed as head of EMBL Monterotondo, succeeding Nadia Rosenthal, it was announced at the Winter Council Meeting. Philip joins the outstation at the beginning of 2012 from his position as Head of the Developmental Biology Department at the Institut Pasteur. Philip's research interests lie in the area of mouse genetics and genomics and the relationship between genetics and epigenetics.

At EMBL-EBI, team leaders Rolf Apweiler and Ewan Birney have been appointed joint Associate Directors of the outstation following



Ewan Birney (left) and Rolf Apweiler will take over from Graham Cameron at EMBL-EBI

the announcement this autumn that Graham Cameron will retire after 30 years at EMBL. Since 2007, Rolf and Ewan have been jointly running a large team that develops public-domain protein and nucleotide databases and tools. Graham will be working closely with Ewan and Rolf over the coming months in order to smoothly transition stewardship of the world's most comprehensive range of freely available molecular databases, which are accessed by approximately 3.4 million unique IP, or web addresses, a year. They will take on their new roles in April 2012.

Fresh variety

Jan Korbelt from EMBL Heidelberg has taken on the role of co-Chair of the Structural Variation Analysis Group of the 1000 Genomes Project. The group, which comprises experts from 18 institutions from across the USA, China and Europe, integrates computational and experimental approaches with the goal of mapping and understanding structural variation in the human genome.

"Structural variants are the least studied class of genetic variation in humans, despite many recent studies showing their significant impact on diseases," says Jan, who co-chairs the group together with Evan Eichler from the University of Washington and Charles Lee from Harvard Medical School. "We are trying to understand how human genomes differ on a larger scale. The 1000 Genomes Project is seen as the model for enhancing our understanding of this."

www.1000genomes.org

UK invests £75 million in ELIXIR

On 5 December, the UK government announced that it would make a substantial investment in the life sciences – including £75 million for the ELIXIR research infrastructure. ELIXIR's core objective is to ensure that Europe can continue to handle a rapidly growing volume and variety of data from high-throughput experiments such as DNA sequencing. The new funding will allow the construction of ELIXIR's central hub on the Wellcome Trust Genome Campus in Hinxton. The hub will be the nerve centre for bioinformatics in Europe, coordinating the delivery of services and user training from several centres of excellence Europe-wide.

"This commitment from the UK Government to ELIXIR emphasises the growing importance of biological information to every citizen," says Janet Thornton, Director of EMBL-EBI and coordinator of the preparatory phase of ELIXIR, which is funded

under the European Union's Seventh Framework Programme. "This funding puts Europe in a uniquely strong position to solve some of society's most pressing problems, with the UK right in the middle of the action. In the future we expect similar commitments from ELIXIR's members around Europe to build their nodes."

The announcement closely follows the first meeting of ELIXIR's Interim Board, held 7-8 November in London. The meeting was an important landmark in the creation of ELIXIR: signatories of the Memorandum of Understanding nominated a scientific delegate and a member of their funding community to represent their country on the Interim Board. Professor Søren Brunak of the Technical University of Denmark was elected Chair and Alf Game, of BBSRC in the UK, Vice-Chair.

Commenting on the new funding from the UK, Professor Brunak said: "In the organisation of the ELIXIR bioinformatics infrastructure the hub is essential. In order for the whole to be greater than the sum of its parts we need strong coordination of activities across the different nodes in Europe."

www.elixir-europe.org



ELIXIR's data resources will be used by all life science ESFRI (the European Strategy Forum on Research Infrastructures) projects in order to address grand challenges

Call for Danish partner

Denmark is set to follow in the footsteps of its Nordic neighbours, with the launch of a national call inviting applications to host the Danish 'node' of the Nordic EMBL Partnership for Molecular Medicine. The Danish node will focus on state-of-the-art research in neuroscience.

Established in 2007, the Nordic EMBL Partnership includes the universities of Oslo, Umeå and Helsinki, with established nodes at the Centre for Molecular Medicine Norway (NCMM), the Laboratory for Molecular Infection Medicine Sweden (MIMS) and the Institute for Molecular Medicine Finland (FIMM). The partnership seeks to combine complementary expertise in biomedicine and foster industry collaborations, working closely with EMBL.

The Lundbeck Foundation, one of the largest private contributors to natural science research in Denmark, will fund the node with 120 million DKK (16 million Euro) over 10 years. It is expected that the host institution will also commit to significant funding.

The new Node will adopt aspects of the EMBL operational model, such as international recruitment, staff-turnover and the external review system. The call is open to research institutions across Denmark, and the deadline for applications is 15 February 2012.

BioStruct-X kick off meeting



On 5–6 December EMBL Hamburg hosted the kick-off meeting for the new BioStruct-X project – a collaboration of 11 European facilities, including EMBL Hamburg and Grenoble. Over 100 participants convened at the DESY campus with user representatives, partners and coordinators discussing plans and progress made so far on the EU funded project, which started 1 September 2011.

BioStruct-X provides multi-site access in four key areas of synchrotron-related structural biology: macromolecular crystallography, small-angle X-ray scattering, X-ray imaging, and protein production and high-throughput crystallisation. It also integrates research and networking activities.

"By bringing together European expertise in these areas, we can not only offer the best services to the European scientific

community, but push back the frontiers in terms of structural biology research – it is a really powerful tool," says project coordinator Matthias Wilmanns, Head of EMBL Hamburg.

The meeting included technical lectures and a tour of the local facilities at PETRA III. "We had a lot of productive discussions over the two days," says Ivana Custic, project manager of BioStruct-X. "And with a project this size, we will certainly experience exciting and challenging moments over the next four years!"

The project will cooperate closely with INSTRUCT (integrated structural biology infrastructure) which looks to establish a framework of core technologies in structural biology. The first annual meeting is to take place in Oxford, autumn 2012.

www.biostruct-x.eu



An expert panel discuss methods of treatment



Donna Franceschild speaking at the conference



Nikolas Rose gave this year's keynote lecture

Mind over matter

Experts from fields as diverse as sociology, neuroscience, medicine and policy came together for the 12th EMBO|EMBL Science and Society conference on 4–5 November, held at the EMBL Advanced Training Centre.

Drawing more than 350 members of the public from around the world, together with a large cohort of journalists, 'Making Sense of Mental Illness' provided a platform for discussion and debate on a major global health problem that affects all ages, social groups and cultures.

Keynote speaker Nikolas Rose (London School of Economics) gave an overview of what he saw as the "new territory" of mental

health, pointing to changing relations, alliances and conflicts between neuroscientists, psychiatrists and policy makers. It set the scene for lively, productive and, at times, controversial interactions amongst speakers and participants across four distinct sessions.

"Mental illness is an issue that touches the lives of every one of us"
– Sandra Bendiscioli

Highlights included talks by Hans-Ulrich Wittchen (Technical University of Dresden) who outlined the scope of the mental health problem worldwide; Donna Franceschild (Making Waves Film and TV Ltd) who gave a

frank personal account of living with bipolar disorder; and Geraint Rees (University College London), who used interactive imagery to show how people's conscious perception of the world can differ and how this relates to structure and function in the brain.

"Mental illness is an issue that touches the lives of every one of us," says Sandra Bendiscioli, main conference organiser from the EMBO Science Policy Programme. "The range of talks, from implications of scientific and technological developments to real-life experiences of patients, gave participants important and challenging questions to reflect on and discuss."

New complexity



Imre Berger working with cell cultures

A new EU-funded research initiative led by EMBL Grenoble's Imre Berger began in November, bringing together expertise from academia and industry to design, validate and roll-out powerful tools, high-throughput methods and technologies for the production of complex biologics (medicinal products).

The four-year, 6 million Euro, 'Complex-INC' project involves an international and interdisciplinary consortium, combining expertise at academic research institutions (including EMBL) and successful small- and medium-sized enterprises (SMEs).

A major aim of the project is to use a wide range of synthetic biology approaches for the development of new expression vector systems using baculoviruses, mammalian, yeast and insect cell lines. It is anticipated that the pharmaceutical industry will benefit from better access to proteins, protein complexes and complex biologics, boosting endeavours in areas such as drug discovery, vaccinations and therapeutics.

"There is an urgent need for intelligent production technologies to provide specific biologics, in basic and applied research alike," Imre explains. "With ComplexINC we will achieve this by bringing together the right expertise from both academia and industry."

The project also involves input from larger companies and another key goal is the foundation of a new high-tech SME, which will focus on the discovery and commercial production of high-end biologics.

Medicinally speaking

Scientists from the Molecular Medicine Partnership Unit and guests presented recent findings on a large range of different study areas at the 9th MMPU open day in November.

Mechanisms in colorectal cancers, iron homeostasis and cystic fibrosis were some of the headline topics as experts from the eight MMPU groups (each headed by one group leader from EMBL and one from the Medical Faculty of Heidelberg University) convened at EMBL Heidelberg together with participants from major institutions from around the world.

Three new MMPU groups also contributed to the day, including a collaboration to study chronic pain between Heidelberg University's Rohini Kuner and EMBL Monterotondo's Paul Heppenstall – the first researcher from the outstation to become an MMPU group leader. "The collaboration will enable us to direct some of our research towards medical applications," explains Paul. "Hopefully it could also lead to more MMPU–Monterotondo interactions."



The cycle of life

Have you ever wondered what makes the world go round, the cell replicate and humans go to sleep every evening (except Saturday) and wake up every morning (except Monday)? Well these were some of the questions that inspired the predoc class of 2010 for the organisation of their PhD symposium entitled: 'The Rhythm of Life: Cycles in Biology'.

This exciting and interdisciplinary theme brought together over 230 participants at the EMBL Advanced Training Centre. The symposium, now in its 13th year, has grown steadily since its inception and attracts speakers and young researchers from all over the world.

This year, the symposium was also preceded by a day of talks from PhD students from Japan. Topics ranged from seasonal variations in quail testicular size, to circadian rhythms in plants. Talks from world-leading scientists, including Leroy Hood, Patrick Cramer (Regu-

latory Cycles session), Mariano Barbacid (Cell Cycle session) and Albert Goldbeter (Circadian Rhythms session), were interspersed with talks and poster presentations from PhD students. Invited speakers were very impressed with the standard of work presented by the young and enthusiastic participants. "It's been a fantastic meeting, it's been really inspiring to see the work on display here," says Alex Webb, a group leader at the University of Cambridge. These words were echoed by Chao Tang, professor at Peking University, who wants to establish a similar initiative at his institution.

The cycle of EMBL PhD symposiums continues next year, albeit with a different rhythm, under the title: 'Overcoming Chaos', with a focus on systems biology, networks and interactions.

– Gary Male and Camille Terfve



Photo: Dominic Eichler



Top: Participants during one of the poster sessions. Bottom: Symposium coordinators Gary Male (EMBL Heidelberg) and Camille Terfve (EMBL-EBI)

40 in the Bank

This October, 270 structural biologists from around the world celebrated the 40th anniversary of the Protein Data Bank (PDB) at Cold Spring Harbor Laboratory in the US. Since its inception the PDB has grown dramatically, from seven entries 1971 to 77 000 in 2011. Despite its name, structures also include anything from small antibiotics to viruses and complex molecular machines such as ribosomes. All have been determined by experimental methods, including X-ray crystallography, NMR spectroscopy and cryo-electron microscopy.

Speakers at the symposium reflected on revolutionary advances over the past decades, which have been driven by developments such as the use of synchrotron radiation and protein cloning, and discussed future directions of the field. EMBL-EBI Director Janet Thornton, one of the invited speakers, says: "Bioinformatics has changed the way we do biology. Because of global collaborations like the PDB, researchers can use structures in ways they would never have dreamed of 40 years ago."

Event co-organiser and EMBL-EBI senior team leader Gerard Kleywegt adds: "The PDB is truly a global resource. For over a decade European and Japanese arms of the collaboration have helped to raise the bar in terms of quality, and the structural biology community is working to a higher and more consistent standard than ever before."

Working together



Small angle X-ray scattering (SAXS), high throughput crystallisation (HTX), macromolecular crystallography (MX) beamlines, computational methods and instrument control software were the major focus points at the EMBL Grenoble-Hamburg bilateral meeting in November. Taking place in Grenoble, more than 35 engineers and scientists from both sites exchanged ideas, discussed ongoing developments and identified new directions and solutions for optimal service at synchrotron facilities.

A key topic of discussion was instrumentation and methods, in particular the integration of sample flow through automated platforms such as HTX and MX – resources that are increasingly important in supporting challenging structural biology projects. Other issues debated included the development of infrastructures, instrument support and personnel. New project plans included a collaboration to integrate high-perfor-

mance liquid chromatography systems on bioSAXS beamlines to process proteins and complexes immediately after purification (supported by the EU-funded programme BioStruct-X (see page 3)), together with joint endeavour in beamline automation and to develop a new generation of fully integrated MX facilities, including crystallisation, crystal harvesting and data collection.

Now in its eighth year, the meetings have initiated important collaborations between the sites, including the development of a single bioSAXS sample environment, together with advancements in crystallisation tracking software and a diffractometer for micron-sized crystals (currently being tested on the PETRA III MX2 beamline in Hamburg). The meeting was synergy at its best and all are looking forward to meeting again next year in Hamburg.

– Florent Cipriani and Josan Márquez

The synergy of silent success

There are many examples of teamwork at EMBL that have led to scientific breakthroughs, but fewer involve interactions of scientists from three EMBL sites. Rarer still does the work result in two *Nature* papers. But such was the case with research by scientists at EMBL Grenoble, EMBL Monterotondo and EMBL-EBI, who put their heads together to generate groundbreaking insight into how cells protect themselves against so-called 'jumping genes' (transposons) – sequences of DNA that move from place to place within a cell's genome, potentially causing havoc if they end up in the wrong place.

While the research for each study was conducted independently, each benefitted from biochemical, mouse genetics and bioinformatics approaches spanning three EMBL sites, the collective efforts of the scientists uncovering teamwork going on in the cell.

Grenoble group leader Ramesh Pillai shared techniques with Monterotondo's Donal O'Carroll and the EBI's Anton Enright to shed light on how the cell's natural defence mechanisms employ a group of proteins known as Piwi to silence the jumping genes. The studies in mouse models show that one Piwi protein works in the embryo, opening the door for a second Piwi to access nuclei to lock up 'jumping genes' by adding certain

chemical marks (methylation) on their DNA. After birth, a third Piwi protein then works to ensure that the 'jumping genes' remain locked up by hunting down messages (RNA) produced from any 'jumping genes' that escape the initial silencing. The studies highlight an interesting collaborative effort between different Piwis to ensure genome integrity.

"Because we are colleagues and friends, we tell it how it is"

– Donal O'Carroll

"We are all young groups and it was great for us to count on colleagues' help without any expectation," says Ramesh. "For instance, in our study we needed to generate a mouse model and without Donal's help we would not

have been able to do it."

"In the same spirit, Ramesh helped my group set up some biochemical assays needed for our study," adds Donal.

"Piwi RNAs are very complex," Anton explains. "But if you are willing to wade through the data and deal with issues of scale you can find some very interesting stuff. To this end, working together has proven crucial."

Since meeting at a faculty retreat in 2007 the scientists have maintained close contact, and have ambitions to develop further ideas together. "The personal chemistry between us is great," adds Donal. "Because we are colleagues and friends, we do not have to say it nicely – we tell it how it is."



Left to right: Anton Enright, Donal O'Carroll and Ramesh Pillai together in Heidelberg

A night to remember

Visitors to EMBL Hamburg's stand at Hamburg's long night of science in November were wowed with hands-on challenges including making and watching crystals grow under the microscope and fishing for crystals using an oversized fishing 'loop'.

The event, which takes place every two years at science institutes and facilities across the city, attracted more than 20 000 people, with 13 600 coming to the DESY site where more than 60 attractions awaited – including



EMBL's stand in the PETRA III hall. "The children were queuing up to fish for crystals," says Annabel Parret, a staff scientist in the Wilmanns group who helped organise the event, "some came back several times and kept trying to beat their own score – they really had a lot of fun!"

Other parts of EMBL's exhibition included movies of 3D models of molecules and the chance for visitors to get to grips with modelling software and 3D data. Members of the PETRA team also offered tours of the EMBL beamlines throughout the day.

"We have been really busy," says Thomas Schneider, head of the PETRA team. "It's not only scientists who have shown an interest in the beamlines. It is great to see so many people here who are interested in what we are doing."

"It was amazing," adds senior administrative officer Margret Fischer who oversaw the event. "We had literally thousands of visitors over the day, right from the beginning until just before midnight. Everyone worked really hard to make this happen, and even though we were run off our feet at times, we are all really pleased that it has worked out so well and that the visitors enjoyed it all."

To the limit!

In November Erin Tranfield, postdoc in the Antony team at EMBL Heidelberg, presented a lecture showing how electron microscopy can be pushed to its limits to answer fundamental questions about cell biology to around 120 students at the Alten Kurfürstlichen Gymnasium in Bensheim. The evening forum was organised by Ullrich Treubert-Zimmermann as part of the school's 325th birthday. The school is part of the iNEXT programme, coordinated by EMBL's European Learning Laboratory for the Life Sciences. It aims to foster scientific enthusiasm in talented students very early in their career. "The students were very pleased by the talk and asked many technical questions as well as questions about life as a scientist," Erin says.



Northern climes

Two of EMBL's most northerly alumni tell us about life and science in their wintry lands...

Varpu Marjomaki, group leader at the University of Jyväskylä, Finland

Science after EMBL?

I am studying endocytic membrane traffic, looking at certain picornaviruses (such as echovirus 1) that are human pathogens.

Location after EMBL?

I work in a biology department that is part of an interdisciplinary nanoscience centre, interacting closely with physicists and chemists. This is really exciting – we have learned to communicate well and collaborate on interesting projects.

Connections after EMBL?

I am in regular contact with former group leader Jean Gruenberg – I plan to visit his lab in Geneva next year.

I have visited former postdocs Harald Stenmark in Oslo and Toshihide Kobayashi in Tokyo. I recently collaborated with Finnish researchers Elina Ikonen and Vesa Olkkonen, postdocs in Kai Simons' laboratory, and

with Sarah Butcher, who is now a group leader in the Finnish Centre of Excellence in Virus Research.

I visit my good friends and EMBL alumni Ari Huovila and his wife Seija Majoinen, and am in contact with Hanna Kuusinen (formerly Lechtonen) who works in Finland as technician in VTT technical research center.

Memories of EMBL?

EMBL was a very special place with an exciting atmosphere for science and fun. My visits there have been my most important learning experience. I enjoyed the intense pace of the work, the wealth of things I learned and the friendly atmosphere. I miss all this, and the amusing lectures by Gareth Griffiths, who placed female English politicians in his slides in their appropriate places in the endosomal world!



Top: Varpu and colleagues Lassi Paavolainen, Nina Rintanen, Mikko Karjalainen, Moona Lehtonen and Ilari Kuronen, in the lab; bottom: feeling festive in the cold!

Stepan Belyakin, a group leader at the Novosibirsk Institute of Molecular and Cellular Biology (IMCB), Russia

Science after EMBL?

My group is working in the field of developmental biology of drosophila. We are particularly interested in genetic cascades that regulate sexual dimorphism in different body parts.

Location after EMBL?

Living in Siberia is fun. What I really like here and what I always missed in Germany is a proper winter. Here we have about five months of snow and down to -40°C, which keeps you always busy staying warm. For some reason, winter is also the most productive season in the lab!

Connections after EMBL?

I am in contact with many friends I met at EMBL: Pavel Natalin (former predoc in Izaurrealde Group) visited me few weeks

ago. He is a representative of Life Technologies Company in Russia now. Ivan Yudushkin (Bastiaens Group) came here this summer with his wife and two baby-girls on his 'curvy' way from California to Austria.

"What I always missed in Germany is a proper winter. Here we have about five months of snow and down to -40°C."

Memories of EMBL?

It's really hard to choose my most favourite memory: I would say it was the feeling that everything is possible and feasible. This is a feeling I try to revive in myself and plant in my students.



Top: Stepan in the snow; bottom: Stepan with colleagues Daniil Maksimov (left) and Petr Laktionov (right)





Christmas tree in the EMBL ATC, decorated by EMBL Kinderhaus

Dear EMBL Alumnus/a,

2011 has been an eventful year for us, here are just some of the memorable moments:

- Amaicha Depino's moving speech about giving back to Argentina when receiving her John Kendrew Award in June
- Markus Grabenbauer's hilariously tragic microscope story during the alumni event at the EMBL Summer Party
- the warmth and friendship of the Greek alumni chapter meeting in the midst of challenging times
- the enormously fun name-badge game at the rooftop 'a-CeMMBL-y' in Vienna
- our 2000th EMBL alumni member, Bob Vaughan (who will get his prize very soon!).

You, as alumni, can be proud of:

- the amazing response to the alumni feedback survey, with more than 800 responses in two weeks, that's a 30% response rate; and another 760 responses for the vote on changes to the Association statutes

- the election of a new and dynamic EMBL Alumni Association Board
- the growing momentum of your Association, as seen by the increasing membership – now 2000-strong – and burgeoning LinkedIn community, with more than 370 members
- generous donations to the Alumni Association Fund by EMBL-EM, and to the John Kendrew Fund by Roland Specker.

Thanks for staying in touch and keeping your records up to date, please continue to do so at www.embl.org/alumni/record-update.

We wish you all a wonderful festive season and a prosperous and fruitful New Year. We look forward to your continued engagement with the Association and another eventful year in 2012.

Sincerely, EMBL Alumni Association Board and the Alumni Relations Office

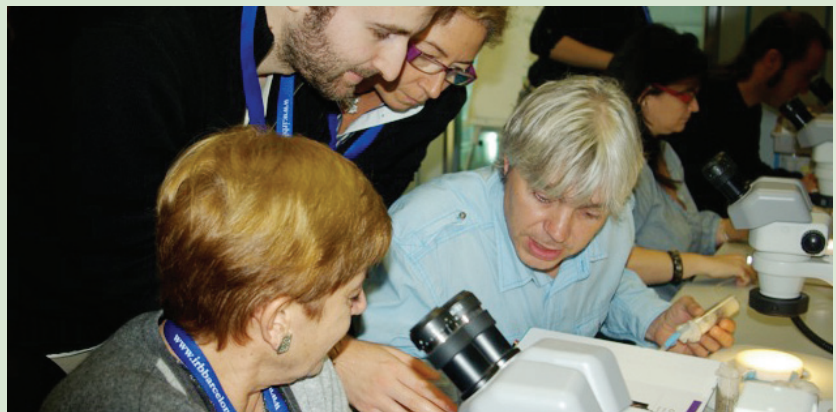
What do you get when you combine a team of leading developmental biologists, four EMBL alumni, 22 high school teachers, and several tubes of *Drosophila melanogaster*?...

A flying success

'On the Fly: A Practical Course for Teachers on Development in *Drosophila melanogaster*', the latest ELLS LearningLAB, was held in Barcelona, 24–26 November, in collaboration with the Institute for Research in Biomedicine (IRB Barcelona).

One of the biggest challenges facing science teachers is to keep up with the dizzying pace of discoveries and teach these topics in an inspiring and engaging way. "It's a daunting task," says Sarah Sherwood, co-organiser of the course and EMBL alumna (OIPA, 1999–2006), "and that's why we jumped at the opportunity to collaborate with the ELLS team."

Many in the team that contributed are no strangers to EMBL: participants included Cayetano González (group leader, 1994–2003) and Marco Milan (staff



scientist, 1997–2003), now group leaders at IRB Barcelona, who gave talks on their latest discoveries using the fruit fly; Julien Colombelli (engineer, 2002–2008), who led a hands-on session on confocal microscopy.

The three-day course provided a unique opportunity for teachers from across Catalonia to get back into the lab, hear the latest about exciting biomedical research being done on the fruit fly, and roll up their sleeves to try their hand at some of the techniques that researchers are using to unlock the secrets of the pesky – but ever so useful – insect.

"It was great to see how everybody collaborated to make it a memorable

experience for the teachers," says Philipp Gebhardt, Education Officer at ELLS.

IRB Barcelona has secured funding for future courses and plans to offer a similar event annually.

– Sarah Sherwood and Philipp Gebhardt

Mark your diaries...

Now open Nominations for the John Kendrew Award (JKA) 2013

Please send your nominations to Mehrnoosh Rayner at alumni@embl.org. If you wish to read more about the award please visit the EMBL Alumni Association web pages:

www.embl.org/alumni/kendrewaward



Where there's a skill, there's a way

Andy Robertson reflects on the challenges and opportunities ahead as the new scientific coordinator of the EMBL International Centre for Advanced Training (EICAT)

Helping scientists to connect and collaborate is the kind of challenge Andy Robertson thrives on. He has applied his rare trade bringing together different scientific ideas and ways of learning in roles spanning academia and industry, most recently as chief scientific officer of Keystone Symposia. Andy, an outgoing American, is now tasked with developing EMBL's programme of world-class events.

"One of the objectives of the Courses and Conferences programme is to expand the community of people critically discussing research topics," he explains. "A conference is not just a show for speeches – other participants must be part of the programme."

This philosophy he sees as the driving force behind his new role, where he takes responsibility for external training, such as Courses and Conferences, the European Learning Laboratory for the Life Sciences (ELLS) and the Visitor programme. Andy holds shared ambition with Dean of Graduate Studies, Helke Hillebrand, who coordinates internal training, such as pre- and postdoc programmes and non-scientific training for scientists under the

umbrella of EICAT. "We both have significant ideas for cross-programming," Andy explains. "For instance, courses and conferences are an opportunity for EMBL's pre- and postdocs to develop communication, negotiation and organisational skills, which are as important as technical skills when it comes to overall success in research."

"I have had many stimulating and forward-looking conversations with researchers"

– Andy Robertson

One-hundred days into the job, and he is tackling both finer details (budgets, short-term planning, operational challenges) and developing long-term goals to help build a unique brand of training at EMBL.

"One vision is that the EMBL Advanced Training Centre is considered to be one of the most powerful scientific instruments on campus," he explains. "Together with the impressive facilities at all EMBL sites, resources here provide a framework for EMBL to deliver training facilities that can stand out above all

others. It is now up to me to use my initiative and take advantage of the potential."

Andy, who grew up next to the beach in California, is drawing inspiration from various sources at EMBL, not least its scientists. "I have had many stimulating and forward-looking conversations with researchers," he says. "It is important and fun to get to know people, but also challenging because there are a lot of people here!"

Other priorities include linking up with partner institutions; the ongoing development of EMBL|EMBO Symposia; working closely with the Corporate Partnership Programme; and driving forward important initiatives that benefit scientists from outside EMBL, such as the Visitor programme.

"Working with partners and collaborators who have missions and goals consistent with ours could bring considerable benefit," he explains. "We have an open door for researchers and students, especially in member states, to come and benefit from this amazing environment, and such initiatives are a huge part of what EMBL is about."

Recipe for success

Participants at October's general assembly of EMBL administrators took part in an action-packed programme, including seminars, lab visits and group work sessions.

In his opening lecture, Associate Director Matthias Hentze gave insight into some of the scientific challenges researchers at EMBL are tackling and how this connects to medicine and medical advances. Other speakers included Science and Society Programme manager Halldór Stefánsson and digital media expert Nicole Simon. Staff were encouraged to reflect on ways that EMBL Administration communicates

its services internally and externally – especially through the web. A lively and productive discussion took place relating to the increasing role that electronic media could



have in enhancing EMBL Administration's communications now, and in the future.

During the two-day event, a surprise activity took staff away from the lab to the kitchens of Heidelberg Castle, where participants took up team-building challenges to become EMBL's next 'MasterChef' adorned with specially designed EMBL aprons. It was a rare opportunity to communicate and network with colleagues from other departments far from the pressures of everyday work and in a relaxed and cheerful atmosphere.

– Anna Efstathiou

Postdocs: Bienvenue à Strasbourg!

Careers, collaborations, and *S. cerevisiae* were on the agenda as more than 70 postdocs from across EMBL's sites convened in Strasbourg from 2-4 November for the annual postdoc retreat.

One of the main aims of the retreat was developing new interactions and collaborations between postdocs throughout the EMBL units and outstations and providing a platform on which to discuss ongoing projects, technological developments and wider aspects such as career development. The get-together, which is organised by the Postdoc Association, included 20-minute scientific talks, poster sessions and informal

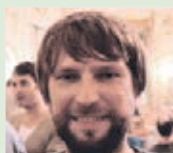


discussions involving all participants. The programme also included keynote lectures

from Bernhard Hauer (Institute of Technical Biochemistry, Stuttgart) and Kevin Verstrepen (VIB Laboratory of Systems Biology, Leuven), discussing topics as diverse as synthetic biology, alternative career paths and the mechanisms underlying rapid evolution in *S. cerevisiae* (and its role in the beer brewing process).

The retreat included social activities such as a boat tour of Strasbourg and an evening visit of the city's bars. Next year, the Postdoc Association hopes to welcome even more participants to the annual retreat and that the event will become an integral part of the EMBL postdoc experience.

What did you think?



"The keynote lectures were great and highlighted alternative career paths in industry, which I am sure opened up a lot of perspectives amongst attendees."
Alessandro Ori, Beck group



"The poster sessions in particular have provided opportunities to interact with people inside and outside my area of expertise, structural biology."
Rasa Sukackaite, Hart team and Rosenthal group



"It is good to get in touch with other postdocs and learn about the research they are working on. I hope these retreats continue every year."
Marcos Morgan, O'Carroll group and Enright group



"I have learned techniques used in different labs and it is very interesting to see the different approaches to biology happening at EMBL."
*Jason van Rooyen
EMBL-ESRF India collaboration*

Inside EMBL

A busy year of visits to EMBL Heidelberg concluded on 8 December when 22 senior scientists and administrators from the German Academic Exchange Service (DAAD) travelled to the lab.

Participants heard talks from representatives of International Relations and the Office of Information and Public Affairs before learning more about research, technology transfer and the graduate programme at EMBL.

Other visits in recent weeks have included a large cohort of 55 biology, chemistry, physics and computer science students from the Beta Faculty of the University of Utrecht; a group of technical experts involved in the construction of the EMBL Advanced Training Centre; school students as part of the German Chemistry Olympics; and more than 10 tour guides from Heidelberg wanting to let visitors to the city know about the great work being carried out at EMBL.



Visitors from the German Academic Exchange Service take part in a seminar at EMBL

Just the job



On 3 December, the German Foreign Ministry in Berlin was buzzing with activity when 1200 young professionals, master's students and graduates visited to learn about career possibilities in international or European Union organisations. The EMBL stand welcomed scores of visitors interested in PhD, postdoc or trainee opportunities, together with research positions and jobs in administration. The fair was a success in communicating to a young audience the excellent research and training opportunities available across EMBL.



CSI, but not as we know it

Speaking to Justus Fuesers, Barbara Prainsack talks about the benefits and shortcomings of futuristic technologies and some of the problems behind the mysteries ingeniously solved by the heroes of CSI



What will crime scene investigation in 2020 look like? And what can molecular biology contribute to supporting the investigators? These were some of the questions Barbara Prainsack addressed in her EMBL Forum lecture “Borderless Crime, and Family Matters: Social and regulatory dimensions of forensic DNA technologies” on 11 November.

“Real crime scene work is much more pedestrian than the slick operations that we see on our television screens,” explains Barbara, a professor of sociology and politics at Brunel University. “What is not shown on TV, usually, are backlog problems, understaffed crime labs and limited financial resources. The heroes of CSI – the world’s most watched drama series – are not people but technologies that never make mistakes. This gives people – members of the public, but also jurors or judges in some instances – a false image of how crime scene work takes place, and what forensic technologies can and cannot do.”

“Forensic profiling could be very useful intelligence, but if used in the wrong way, could give a totally wrong lead”

– Barbara Prainsack

New technologies such as networked databases and rapid DNA testing present opportunities to address some of these issues, but at the same time are creating fresh logistical and ethical challenges.

“Transnationally networked databases such as the one being developed in connection with the Prüm decision in the EU – which will allow European countries to access parts of each other’s databases on a ‘hit/no-hit’ basis – are of increasing importance,” Barbara says. “This makes some people worried about a ‘big brother’ state, but others argue that better networked databases actually enhance data protection because information identifying individuals does not travel across borders un-

less there is a database match. However, there are some issues that need to be overcome – for instance for countries that do not yet have a centralised database. Questions have also been raised over ‘coincidental’ matches.”

Another such new technique is familial searching. This happens when two DNA profiles match not at all loci but at more loci than would be expected for unrelated people. But this raises issues such as privacy and the possibility of discrimination (some ethnic minorities are over-represented in the database). So too does so-called ‘phenotypic profiling’, which can give indications relating to characteristics such as the likely eye color of a suspect. “Profiling of externally visible traits

can give probabilistic indications of what the person looks like, or who their genetic ancestors might be,” Barbara explains. “But it is not really practical. In general you cannot base a drag-net on a person’s 62% probability of having dark eyes.”

Both the potential and limitations of technologies must be considered in identifying how they can realistically help in addressing crime and its causes, she argues.

“Forensic profiling could be very useful intelligence, but if used in the wrong way, could give a totally wrong lead,” Barbara says. “Technology is part of the solution to solving crime, but we will continue to rely also on human judgment and experience.”



A strange new world?

Over 350 interested members of the public crammed into the Print Media Academy in Heidelberg to hear Nobel Laureate Paul Nurse outline his vision of ‘The Great Ideas of Biology’.

Speaking in a Heidelberg Forum on Biosciences and Society lecture, Nurse gave a historical overview of the breakthroughs he believes have defined scientific progress in biology – from theories of the gene, evolution by natural selection, the proposal

that the cell is the fundamental unit of all life and the organisation of chemistry in the cell. He also speculated about a fifth great idea: how cells and organisms process information and acquire specific forms.

“Complexity is going to move biology from the common sense world we essentially inhabit, to a world that is potentially a little bit stranger, where it is not intuitive what is happening,” he says. “This would be comparable to quantum mechanics – you cannot get a common sense view of it, it only makes sense in terms of mathematics.”

The lectures, a joint initiative by EMBL, the German Cancer Research Centre and Heidelberg University, aim to promote understanding of science to a variety of audiences.

“Many biologists, including myself, go into a lot of detail, but often we do not step back and ask: ‘what are the really great ideas?’” Paul explains. “My aim was to identify the historical precedence of where these ideas came from.”

Fast forward to the year... 2012

Scientists from EMBL's five sites share their thoughts on what might be big news in the coming year



Emily Newman
Postdoc,
Panne group,
EMBL Grenoble

"It is almost 2012 and we still do not have jetpacks, flying cars or artificial humans. However, the beam power of EMBL Hamburg's new baby, PETRA III, makes it possible to solve many more structures of important biological complexes in less time. We are also steadily getting closer to obtaining structural details of cells with new techniques such as FLASH or XFEL. And once we know the complete internal composition of each cell, building an artificial buddy is pretty much peanuts. By the way, where's my Hoverboard?"

Tim Wiegels
Predoc,
Lamzin group,
EMBL Hamburg



Raeka Aiyar,
Science communi-
cations officer,
Steinmetz group,
EMBL Heidelberg

"We continue to fight in the everlasting war against molecules which simply will not crystallise! Our battle plan begins with our state-of-the-art proteomics suite to develop soluble constructs. We then fire our large array of crystal screens to incite crystalline precipitation and keep a close look out with our computerised HTX lab facilities. This war is fought in alliance with comrades in electron microscopy, nuclear magnetic resonance, biochemistry and solution scattering; closing the gap between the front line and our next *Nature* paper. Over and out."



John Marioni,
Group leader,
EMBL-EBI

"Molecular biology took some impressive strides in 2011. On the one hand, we got better at miniaturisation (tracking single molecules, sequencing single cells), and on the other we built big pictures (microbiome gut types, global gene expression models). Integrating big and small, along with game-changing technologies like iPS cell generation, will take us further along the road to personalised medicine. I think we can look forward to a more precise, interdisciplinary, and predictive science in 2012. We can also look forward to interacting with colleagues in our new cafeteria and staff lounge."



Tomoko Ishibashi
Predoc,
Jechlinger group,
EMBL Monterotondo

"Space should be the frontier that genomics helps conquer in 2012. From accurately determining how DNA is folded within the nucleus, to investigating how gene expression levels vary at the cellular level as you move across a tissue, next year will likely see an explosion of studies where spatial and high-throughput genome-wide data are combined. Effectively storing and analysing the vast quantities of data generated will, of course, require careful work on the part of many space rangers. However, if they succeed the biological insights obtained could stretch to infinity... and beyond."



"Following important findings in 2011, from the function of Mili protein to Microglia, science in Monterotondo will continue to flourish in 2012 across our laboratories and core facilities. Exciting for me is the wide range of mammalian biology research that takes place here, including development and differentiation, cancer and regeneration and behaviour and sensory perception. It gives me a great feeling of optimism seeing the passion and dedication of the scientists, the desire to connect with society and the continuous improvement of facilities, services and social events on the campus."

ELLS at EMBL-EBI

EMBL-EBI welcomed 22 secondary school teachers from all over Europe to a three-day ELLS LearningLAB on bioinformatics this November.

Outreach representatives from EBI service groups talked about different areas of bioinformatics and rolled out a series of hands-on activities, using malaria as an example throughout. One activity was a game led by the EBI's Raffael Jiminez that can help anyone understand what data integration is all about. The course featured several guest speakers: Dean Madden from the UK's National Centre for Biotechnology Education presented a series of excellent activities explaining evolution, and teachers were



given an introduction to current malaria research by Stephanie Blandin from EMBL Heidelberg and Julian Rayner from the Sanger Institute. "The direct contact with researchers and colleagues was very useful," says course participant Monica Menesini. "Subjects were presented in a clear and understandable manner, and some ideas can be directly used in the classroom."

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www.facebook.com/embl.org
Photo of the week: Are you at the 13th International EMBL PhD Symposium? Tag yourselves - we have!
November 18 at 3:50pm

29 people like this
- EMBL tagged with 15 others

Denver goes global

We're called the American Society for Cell Biology, but really we're a global community," said Sandra Schmid, ASCB president, at the opening speech of the society's annual meeting that is the world's largest gathering of cell biologists. For the first time in its 50-year history, the chair of the meeting's programme committee was European: EMBL Heidelberg's Jan Ellenberg. "We structured the entire programme around a vision of the future of cell biology as an integrating hub of the life sciences and had very positive feedback from participants," says Jan, who is head of the Cell Biology and Biophysics Unit. The iconic blue bear that peeps into Denver's convention center will have watched over 30 EMBL group leaders and pre- and postdocs finding their way among the over 5500 participants to chair sessions, give plenary talks, take part in round-tables, and present posters. International scientists at all stages in their career stopped by the EMBL booth, where the EIPOD programme in particular raised significant interest, especially from American participants.



Fresh-faced bioinformaticians at the start of November



But look what happened just one month later...



The bioinformoustachians

This November, a team of hairy men in Hinxton banded together to raise funds for Movember (www.movember.com), a charity for research on prostate cancer and other cancers that primarily affect men. The 'bioinformoustachians' shaved their faces clean on 1 November, and spent the month growing a moustache for a good cause. Francesco Iorio and Remco Loos took first

prize for fundraising, and Nick Luscombe got special mention for his creative stylings. 'Bioinformoustachian captain' John Overington praised the team for raising £3,788 and issued a challenge to other institutions: "If any other large science data centres want to make a fight of it for Movember 2012, bring it on, we are waiting!" Donations are still being accepted at <http://mobro.co/ebi>.

newsinbrief

⇒ On 1 November EMBL-EBI welcomed students and early-career scientists who wanted to find out more about the EBI's research, services, training and career opportunities. The highlights of the Open Day included an interactive session to showcase the new search engine from the EBI's User Experience Analyst Jenny Cham and a talk by Karyn Megy about her research into annotating the genome of the tsetse fly. The next Open Day will take place on 1 March 2012. To learn more, please visit: www.ebi.ac.uk/training/openday.

⇒ In October, EMBL-EBI and EMBL Heidelberg joined forces to offer a week-long EMBO Practical Course on Metagenomics. Twenty scientists from across the globe gathered in Heidelberg to listen to talks from key players in the field and to gain practical experience in both wet-lab and bioinformatics



EMBO course organisers reflect on a successful Metagenomics practical course

approaches. This was the first collaborative scientific training course delivered by these two EMBL sites. Elisa Loza from Rothamsted Research, UK, says: "The DNA extraction in the lab was fascinating – this experience will change the way in which I analyse molecular data. I feel very fortunate to have been selected as a participant." The course is now online:

www.ebi.ac.uk/training/online

⇒ EMBL's European Learning Laboratory for the Life Sciences teamed up with other members of EMBL's International Centre for Advanced Training to deliver an in-house learning lab in October. EMBL Heidelberg group leader Jan Korbel gave a lecture on exploring genome sequences to learn about human diseases, before participants took part in hands-on experiments and role-playing tasks to reflect on the implications of genetic screening tests.

events@EMBL

11 January EMBL Heidelberg

Distinguished Visitor Lecture:
Pascale Cossard, Institute Pasteur

13 January EMBL Monterotondo

Distinguished Visitor Lecture:
Olivier Pourquié, Institute of Genetics and Molecular and Cellular Biology, France

13 January EMBL Hamburg

EMBL Forum on Science and Society seminar: Harriet Ritvo, Massachusetts Institute of Technology,

4 February EMBL Heidelberg

Burns Night

7–8 February EMBL-EBI

Course: ESGI Data Flow Workshop 2012

13 February EMBL Heidelberg

EMBL Forum on Science and Society seminar: The importance and ethics of basic neuroscience research with non-human primates, Stefan Treue, University of Göttingen

14 February EMBL Heidelberg

Distinguished Visitor Lecture:
Edith Heard, CNRS

16–18 February EMBL Heidelberg

Conference: Omics and Personalised Health

20 February EMBL Heidelberg

Distinguished Visitor Lecture:
Peter Campbell, Wellcome Trust Sanger Institute

24 February EMBL Monterotondo

Distinguished Visitor Lecture:
Susan M. Gasser, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland

1 March EMBL-EBI

Open Day

12–14 March EMBL-EBI

Workshop: Next Generation Sequencing 2012

For more details about these events and more, visit www.embl.org/events.

people@EMBL



Group Leaders **Florent Cipriani** (EMBL Grenoble), **Wolfgang Huber** (EMBL Heidelberg) and **Dmitri Svergun** (EMBL Hamburg) have been promoted as senior scientists. Their new positions reflect their involvement in activities at EMBL above and beyond leading a group. As part of the responsibilities in their new roles, Florent, Wolfgang and Dmitri will advise faculty on new appointments and issues of scientific importance.

awards&honours



Gitte (third from left) accepting her prize in Brussels

Cellzome founder wins prestigious woman's award

Gitte Neubauer, Vice President of Cellzome – an EMBL spin-off company – has been awarded the EU Women Investigator's Award first prize for her contribution to translating research into commercial value as one of the founders of Cellzome. Gitte applied her experience in proteomics to build Cellzome's leading proteomics technology platform and, more recently, started the innovative chemoproteomics-based assay development and screening group. The prize of 100 000 Euro was presented by European Commission President José Manuel Barroso.

Detlev Arendt, senior scientist at EMBL Heidelberg, has been awarded the Alexander Kowalevsky medal by the scientific council of the St Petersburg Society of Naturalists, which includes an international committee of distinguished scientists. The award is given for outstanding achievements in evolutionary developmental biology and recognises Detlev's research into the evolution of animal body plans and cell types. Past recipients include Michael Akam, Brian Hall, Rudolf Raff, Claus Nielsen, Walter Gehring, Scott Gilbert and Sean Carroll.

Carl-Henrik Heldin, a former Chair of EMBL's Scientific Advisory Committee (SAC) has been awarded an honorary doctorate by the Medical Faculty of Heidelberg University. Carl, who is Director of the Ludwig Institute for Cancer Research in Uppsala, oversaw a number of Unit reviews during his time as Chair and was the SAC representative on the Strategic Forward Look Council Steering Committee – mandated by EMBL Council as the Lab entered its fourth decade (2006–2015) and in preparation for the search for current Director General Iain Mattaj.

EMBL Grenoble postdoc **Andrés Palencia** has won the scientific cover prize at the 2011 International Symposium on Aminoacyl-tRNA Synthetases. The work, which sets crystallographic structures against the backdrop of the mountains of Utah, was also used as the cover to the abstract book at the conference.

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