

EMBL *etcetera*

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Ground breaking

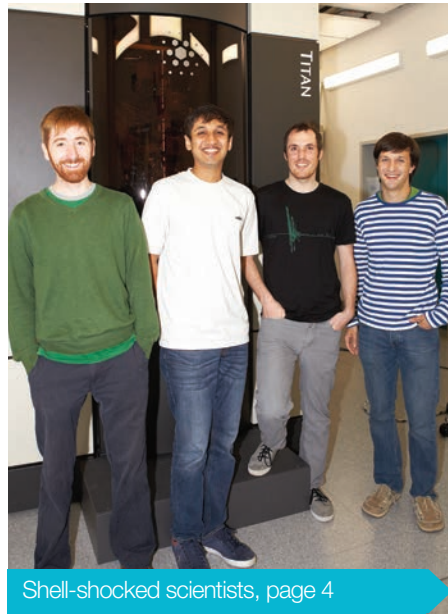
The earth moved for EMBL-EBI on 13 June, when Director Janet Thornton took to the wheel of a digger to officially begin construction of a new Technical Hub on the Genome Campus.

The new facility, which will house some 200 staff, has been made possible by a £75m grant from the UK government for the expansion of EMBL-EBI and in support of its role in ELIXIR, the nascent research infrastructure for life science data.

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Hot off the press

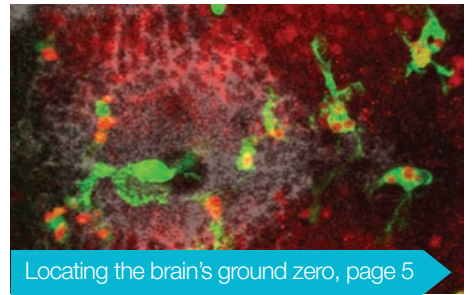
EMBL's scientific productivity is rising with the temperature, with developments and discoveries coming thick and fast



[Shell-shocked scientists, page 4](#)



[Atlas of RNA-binding proteins, page 4](#)



[Locating the brain's ground zero, page 5](#)



6 | Butterfly's genetic secrets

The big question

Scientists from across EMBL's five sites give their views on the questions they would most like answered in modern biology...

What makes humans human? How do cells sense where they should go? When will we map the entire human proteome? Some questions are currently beyond even the finest minds on the planet, but that doesn't stop EMBL's scientists wanting to find the answer. Learn about the questions occupying thoughts and daydreams in the lab.

[Read more on page 7](#)

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8 | Putting alumni on the map

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Light at the end of the tunnel

The dream of an integrated Biology Infrastructure Life Science Facility at the European XFEL project in Hamburg is one step closer to realisation.

Victor Lamzin, deputy head of EMBL Hamburg, is coordinating a project to construct, commission, and operate a Biology Infrastructure Life Science Center (XBI) at the European XFEL project. XFEL – an X-ray Free Electron Laser currently under construction in Hamburg – is a fourth-generation photon source with high flux coherent radiation, fine pulse structure and peak brilliance orders of magnitude higher than that of third generation synchrotrons.

Taking the initiative



A conference organised by the Initiative for Science in Europe (ISE) has brought leading scientific minds together with policy makers from the European Commission, European Parliament and member states to consider how science policy can better serve the interests of the scientific community.

Issues discussed at the meeting, which featured participants from EMBL and EMBO, included the promotion of transnational collaborations, calls for understanding of the distinct challenges faced by different disciplines, and how scientists can be more effectively involved across all stages of the policy making process.

ISE is an independent platform of learned societies and scientific organisations, including EMBL, which aims to support all fields of science at a European level, and promote the involvement of scientists in political decision-making.

“While more and more different funding schemes emerge at a European level, one of the key priorities highlighted at the meeting is that we need to reduce the complexity of the research funding system for individual researchers,” says Wolfgang Eppenschwandtner, executive coordinator of ISE. “Bringing together such high profile people from science and policy is an important step in realising this goal.”

“The use of XFEL will revolutionise the way scientists visualise biological events, at the level of large complexes and sub-cellular components, as well as their dynamics and processes, and will open up a world of new and exciting research opportunities to the biological community,” says Victor.

The nature of modern structural biology experiments, and the fragility and short life span of many samples, mean the ability to prepare, analyse, and interpret experiments in immediate proximity to the XFEL instruments is essential. The project will develop a dedicated infrastructure to support this.

The XBI project was recommended for implementation at the XFEL Council meeting in June and follows the signing of a Memorandum of Understanding by EMBL and XFEL in September 2011 as a basis for future collaborations. Both institutes are situated on the DESY campus, together with the storage ring PETRA III, the free-electron laser FLASH, the Centre for Structural Systems Biology (CSSB), and the Centre for free-electron laser science (CFEL). EMBL is also collaborating in a complementary project with Henry Chapman (CFEL, DESY), in developing instrumentation for serial femtosecond crystallography and single-particle imaging at XFEL. “The underlying international and inter-institutional activities will make XBI the world’s premier centre in XFEL biological imaging,” Victor adds.

The State of things

Collaboration and cooperation were high on the agenda as EMBL representatives visited Iceland and Luxembourg to meet with politicians and scientists.

In Iceland, a delegation including Director General Iain Mattaj, Director of EMBL-EBI Janet Thornton, and Director of International Relations Silke Schumacher, met with representatives from human genetics organisation DeCODE, leading data centre Verve Global, and the University of Iceland. They discussed opportunities for closer involvement in initiatives such as the Nordic-EMBL Partnership for Molecular Medicine, and the European Life Science Infrastructure for Biological Information (ELIXIR).

In Luxembourg, Iain and Silke joined EMBL Unit heads Peer Bork and Lars Steinmetz in meeting representatives from the Ministry for Higher Education and Research, the National Research Fund,



and the University of Luxembourg. They discussed how interactions between EMBL and the Luxembourg scientific community could be intensified. Two collaborative research projects are to be led by Peer and Lars together with scientists from the Luxembourg Centre for Systems Medicine.

XFEL issues a Call for Expressions of Interest for contributing to the European XFEL

MAR 2011

In cooperation with the XFEL directorate, EMBL – together with collaborating laboratories from Russia, Germany, Sweden, and Denmark – submits an Expression of Interest for a biology infrastructure at XFEL

JUNE 2011

EMBL presents the XBI project to the XFEL SAC. The project is warmly received and EMBL is encouraged to submit a full proposal

SEPT 2011

The construction of the network of tunnels, which total nearly 5.8 kilometres in length, is now completed



© European XFEL

Submission of full XBI project proposal

MAR 2012

“Use of XFEL will revolutionise the way scientists visualise biological events” – Victor Lamzin



‘Get new ideas for your research’

The EMBO Meeting chairs look ahead to the conference in Nice, 22–25 September

What to expect

EC: The EMBO Meeting covers a wide range of topics – you can hear some of the very best researchers from Europe and abroad talking about your favourite subject. But it is also an opportunity to hear about different fields, some that you may not be very familiar with, which provides the opportunity to get new ideas for your own research.

Personal highlights

JP: The session on oxygen sensing and vasculogenesis – this is a fascinating area. This session features three outstanding speakers: Peter Carmeliet has been prolific in making knock-out mice for various molecules, which has helped to build a very comprehensive picture of the biology



“Hear from some of the best researchers from Europe and abroad”
– Elena Conti



“Oxygen sensing and vasculogenesis is a fascinating area”
– Jacques Pouyssegur



“Talk to as many people as you can about your research”
– Julie Ahringer

of angiogenesis; Kari Alitalo has identified and characterised many of the molecules that will stimulate the migration of cells and the formation of blood capillary networks, crucial events that are needed for angiogenesis; and Anne Eichmann, who is fascinated by specialised endothelial cells called tip-cells, and how they lead to vascular patterning.

JA: The sessions on chromatin and RNA biology are going to be real highlights as it's an exciting time for these areas of research. We are just starting to scratch the surface of understanding how chromatin is regulated in transcription and other nuclear events, and also in trying to understand how RNA is regulated in post-transcriptional and transcriptional events.

EC: My personal highlight is the plenary session on RNA biology: Elisa Izaurralde will talk about gene silencing by microRNAs; David Tollervey will report on how he approaches the problem of intricate networks of protein complexes and protein RNA interactions with the help of mathematical models; and Rob Singer will discuss technologies that are now used to follow an RNA molecule in living cells at the single molecule level and to look at dynamics *in vivo*.

Advice for young scientists

JA: Talk to as many people as you can about your research. Science is about discovery, but integral to that is communicating your findings to others; bring a poster and talk to people at and outside of poster sessions.
www.the-embo-meeting.org



Budget commitment signals start of ELIXIR

The second meeting of the interim ELIXIR Board delivered an important step in realising the project, as representatives from member states voted unanimously to support the proposed three-year budget.

ELIXIR is a pan-European initiative to operate a sustainable research infrastructure for managing and safeguarding biological information in Europe, with the hub located at EMBL-EBI. To date, 11 member states are signatories of a Memorandum of Understanding to catalyse its implementation; the agreement commits funds calculated individually for each of the countries on the basis of GDP.

This commitment to funding, agreed before the end of the project's preparatory phase, distinguishes ELIXIR as the first European infrastructure project of this scale to get under way within such a short timeframe. The initial budget will enable the recruitment of dedicated staff, including a founding director and key technical specialists, with a view to commencing the planning of the project's complex technical implementation.

Hinxton hub is ground-breaking

The sun shone on a ground-breaking ceremony in Hinxton on 13 June, when construction of a new building was officially kicked off by EMBL-EBI Director Janet Thornton, working a digger! Staff gathered on the plaza, while senior scientists and funders in hard-hats waited in vain for their turn to work the machine.

The new EMBL-EBI facility, made possible by a £75m grant from the UK government, will house around 200 staff. Among the day's speakers were Alf Game of the Biotechnology and Biological Sciences Research Council (BBSRC), Chris Tredget of capital works company Willmott Dixon, and Mark Green, Head of Administration at EMBL-EBI.

“We are at the beginning of a new era in biological information,” says Janet. “This new building is where it will start, and its success will depend entirely on the people who go in it – the staff.”

Guests at the ceremony included representatives of Oxford Archaeology East, who presented an exhibition of artefacts from the site discovered over the past 20 years.



Digging it! Janet, joined by BBSRC guests, EMBL-EBI colleagues, and Willmott Dixon's Chris Tredget



It's not only the temperature that's been rising in recent weeks around EMBL sites: one of EMBL's barometers of scientific productivity, the Press Office, has been working up a sweat communicating a deluge of fascinating discoveries from across the Laboratory. Here's just a selection of the great work going on. For more information on these and other exciting developments, visit www.embl.org/press

Titan helps reveal shape-shifting shell

Research led by scientists at EMBL has uncovered for the first time the detailed structure of the shell that surrounds the genetic material of retroviruses, such as HIV, when they are still being formed.

Retroviruses are made up of genetic material encased in a protein shell, which is in turn surrounded by a membrane. After a virus enters a target cell (one of the cells in our immune system in the case of HIV), the virus replicates, producing copies of itself, each of which has to be assembled from a medley of viral and cellular components to make the immature virus.

"All the necessary components are brought together within the host cell to form the immature virus, which then has to mature into a particle that's able to infect other cells. We found that when it does, the changes to the virus' shell are more dramatic than expected," says group leader John Briggs.

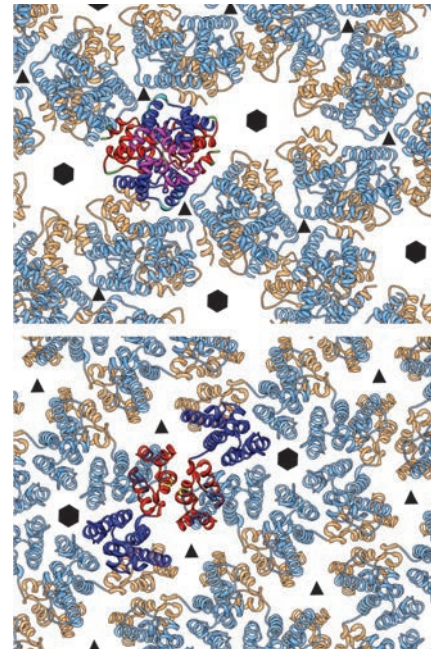
By using a combination of electron microscopy and computer-based methods the team

– which includes scientists from the Briggs and Sachse groups at EMBL Heidelberg, and the Institute of Chemical Technology in Prague – were able to investigate which parts of the key proteins stick together to build the immature shell. These turned out to be very different from the parts that build the mature shell.

The finding, which has been a long-running goal in the Briggs group, made use of the new Titan Krios transmission electron microscope at EMBL Heidelberg. "We were not able to solve the structure with conventional image analysis. But when we applied our new image processing approach to data from the new microscope, we suddenly saw a clear structure – it was a fantastic moment," says Tanmay Bharat, predoc in the Briggs group.

The research, published in *Nature* in June, could in the long-term have implications for drug development, and understanding the life cycle of these viruses.

⇒ A video of the work is available at: www.youtube.com/emblmedia



As a retrovirus matures, the two parts of its shell protein (red and blue or yellow and blue) dramatically rearrange themselves, twisting and moving away from each other

Remapping the cell

In a story that might draw comparisons to Christopher Columbus' search for India and instead coming across America, research led by scientists at EMBL Heidelberg could help explain the role of genes that have been linked to diseases such as diabetes, glaucoma, and cancer.

When the team set out to find enzymes that bind to RNA, they came across 300 proteins previously unknown to bind to RNA – more than half as many as were already known to do so. Almost 50 of the proteins found are encoded by genes known to be mutated in patients suffering from various diseases. The finding raises new possibilities for researchers to investigate, such as the prospect that such conditions could be caused by a malfunction in those proteins' ability to bind to and control RNA.

"Unlike Columbus, we found what we were looking for: well-known enzymes that bind to RNA," says Matthias Hentze, group leader and Associate Director of EMBL. "But we never thought there was so much unexplored terri-



tory, so many of these RNA-binding proteins to be discovered."

The work, published in *Cell* in May, meant Alfredo Castello in the Hentze group and Bernd Fischer in the Huber group, working with colleagues in the Krijgsveld and other groups at EMBL as well as at other institutes, had to develop a new method to identify and isolate all proteins that bind to RNA in living cells.

Molecular mechanisms of kidney disease

Scientists at EMBL Hamburg have published new data in *PLoS Biology* that could become useful in improving treatments of certain types of kidney disease.

Krisztian Fodor, a postdoc in the Wilmanns group, studied the structure of an enzyme, which – if a mutation prevents it from folding properly – can lead to irreversible kidney damage. By studying the structure of the enzyme (known as AGT) in complex with its receptor molecule, the research showed that the receptor can only recognise AGT if it is properly folded.

"The crystal structure and data from *in vivo* experiments show just how important a properly folded AGT protein is for targeting," explains Krisztian. "Even minor differences prevent it from being recognised and transported to where it needs to go in the cell."

The brain's emergency service

Scientists in the Peri group at EMBL Heidelberg have uncovered how the brain's own emergency response system reacts to a distress call from dying cells that is transmitted throughout the brain. The finding could have implications in the study of neurodegenerative diseases such as Alzheimer's.

Their research, published in *Developmental Cell* in May, shows how cells known as microglia scan the brain for damage and migrate to an injury site to mop up dead cells and other cellular debris.

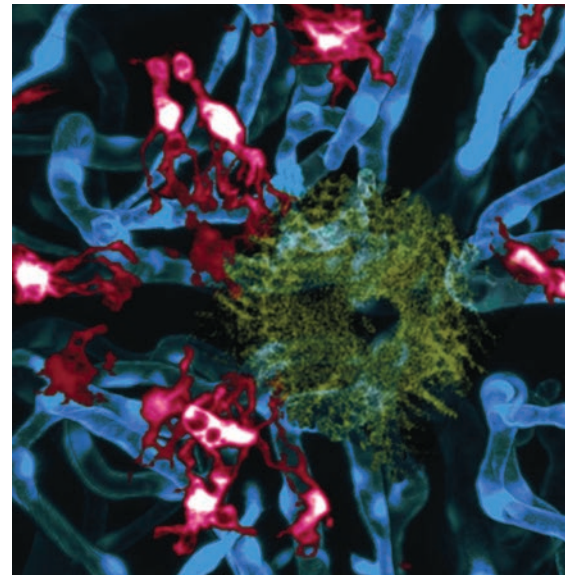
The group used lasers to destroy small numbers of neurons in a zebrafish embryo – which has a transparent brain – and watched under the microscope as microglia migrated to the injury site.

The scientists discovered that the distress call, in the form of adenosine triphosphate (ATP), isn't just emitted by the injured neurons. Instead, it is sent out by neurons

further and further away, thanks to the neurotransmitter glutamate, also released by the injured neurons. The glutamate causes a wave of calcium-swallowing, which in turn makes neurons release ATP. When this wave comes within reach, a microglia cell detects ATP and takes it as a call to action – essentially tracing the wave backwards until it reaches the injury.

“Considering that they help keep our brain healthy, we know surprisingly little about microglia,” says Francesca Peri, who led the work. “Now, for the first time, we've identified the mechanism that allows microglia to detect brain injury, and how that emergency call is transmitted from neuron to neuron.”

The team believe the findings could implicate calcium waves as targets for drug treatments – for instance a drug could potentially stop microglia in their tracks, or reroute their migration.



Microglia responding to an injury-induced Ca²⁺ wave in the zebrafish brain (an assembly of confocal images showing blood vessels in blue, microglia in red and Ca²⁺ signalling in green)



Investing in shares

Three years ago, Christophe Dessimoz of EMBL-EBI and his colleagues at the Swiss Institute of Bioinformatics set out to do a quick computational project comparing the similarity of orthologs (genes in different species that have evolved from a common ancestral gene) and paralogs (imperfect copies of genes within a species). Now, after a lengthy but revealing study, the group has confirmed the long-held conjecture that studying the genes we share with other animals is a viable means of extrapolating information about human biology.

Wolf canine teeth – orthologs of human teeth – can provide scientists with useful information about our own teeth that we might not learn from our paralog genes

Using data derived from tens of thousands of scientific articles, the researchers analysed 400 000 pairs of genes (orthologs and paralogs) from 13 different species and compared the two approaches. An astute reviewer of their initial work pointed to a bias in the public data that no one had noticed before. Addressing that observation ultimately led to clear evidence supporting the ortholog conjecture that genes we share with other species are more likely to have similar functions than genes that first rose as 'extra' copies within our own genome.

Bacteria look after their favourite genes

Mutations create changes in the genome that can give rise to much of the variety we see among species and individuals within a species. Evolutionary biologists have long assumed that mutations occur randomly and that any detrimental changes are purged by natural selection. But a recent paper in *Nature* from researchers in EMBL-EBI's Luscombe Group clearly shows that mutation rates are far from random – cells can actually control mutation rates to protect valuable regions of the genome.

The researchers looked at the degree of randomness in mutation rates across the genomes of 34 strains of *E. coli* bacteria. They were surprised to find that crucial genes mutate at a much slower rate than the rest of

the genome, suggesting that cells are capable of shielding important genes from mutations that could disrupt their function.

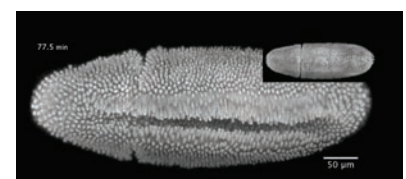
There is evidence from studies of cancer genomes suggesting that similar mechanisms may operate in the development of cancer. Nick Luscombe, who led the research, says: “If we can identify the proteins involved and uncover how this works, we will be even closer to understanding how mutations that lead to diseases like cancer can be prevented.”

Later this year, the Luscombe lab will be leaving the EBI and moving to University College London and the Cancer Research UK London Research Institute. His group will be one of the first joining the newly formed Francis Crick Institute when it opens in 2015.

Life in the fast lane

Just two-and-a-half hours after conception, a tiny fruit fly embryo is bustling with activity. Using a new microscope designed by Uros Krzic in the Hufnagel group, EMBL scientists have produced a remarkable video showing how, over the next 20 hours, the embryo develops into a larva.

➡ Nearly 12 000 viewers have watched this compelling film, join them at www.youtube.com/emblmedia



Butterfly genome reveals promiscuous past

The genome of the Postman butterfly, *Heliconius melpomene*, has been sequenced by a team including researchers at EMBL-EBI, published online in *Nature* in May.

The sequencing data showed that *Heliconius* species share a genetic signal in the regions of the genome that control pattern formation, indicating that an exchange of genes has allowed them to 'copy' advantageous features of each other's wing patterns.

According to Dan Lawson of EMBL-EBI, the implications of this type of research go beyond understanding the hybridisation and introgression associated with mimicry in these butterflies

to the protection of crops and beneficial species. "With the inclusion of *Heliconius melpomene*, Ensembl Genomes now has three lepidopteran species, including the silk moth *Bombyx mori* and the Monarch butterfly *Danaus plexippus*. This will be a boon to scientists working to understand aspects of basic biology that have applications in agriculture. For example, it will greatly facilitate the design of rational, new control measures that target agricultural pest species without harming beneficial ones."



© Chris Jiggins, courtesy of the University of Cambridge

New EMBO Members

The outstanding contribution of EMBL-EBI Associate Directors, Rolf Apweiler and Ewan Birney, and alumni Cosima Baldari, Andreas Ladurner, Michael Sattler, and Thomas Surrey, to the life sciences was recognised in May with the award of life-long EMBO memberships.

They are among 55 scientists who were last week elected as new members, from 17 different countries. In total, EMBO membership now comprises almost 1550 life scientists in the international scientific community.

"Our members are the basis for the excellent international reputation of EMBO and its increasingly global orientation. We welcome this group of exceptional scientists and look forward to their fresh input and ideas," says EMBO Director Maria Leptin.

The latest members represent a broad cross-section of the life sciences and come from 17 different countries. EMBO Members provide scientific input such as acting on advisory editorial boards of the four scientific journals of the organisation, serving on selection committees for EMBO Programmes, and giving general advice to the scientific community.



Shedding light on metabolism

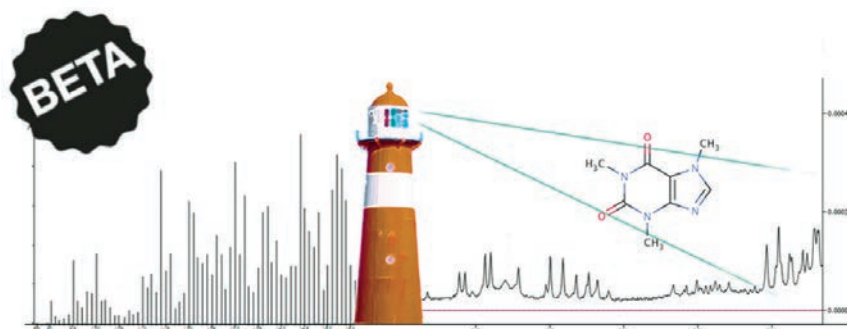
MetaboLights is a new database that provides open access to information from studies into metabolism – the crucial chemical processes in cells that allow organisms to grow, reproduce, respond to their environment, and more.

For the first time, MetaboLights provides a comprehensive, cross-species, cross-platform resource that combines reference data on metabolites, information about their occurrence and differences in concentration between species, organs, tissues and cell types

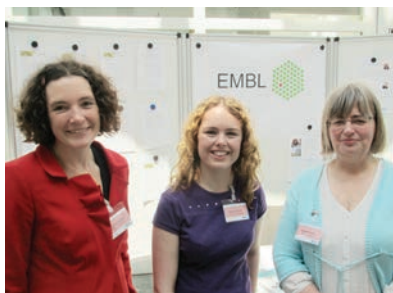
under various conditions. It also allows ready cross-referencing between experiments. Easy access to metabolic data will be useful for studies ranging from assessing the toxicity of chemical compounds through to discovering metabolites that can potentially be used as 'biomarkers' to diagnose disease.

The MetaboLights portal is a joint project between Christoph Steinbeck's team at EMBL-EBI and the UK's MRC Human Nutrition Research (led by Jules Griffin).

www.ebi.ac.uk/metabolights



Careering forward in bioinformatics



Organisers Barbara Janssens and Katrina Pavelin, with Sandra Orchard, EMBL-EBI Proteomics Services Team Coordinator

EMBL-EBI and the German Cancer Research Center (DKFZ) welcomed around 80 early-career scientists to the first Bioinformatics Career Day held at the DKFZ in Heidelberg in May.

The programme included 15 speakers from EMBL-EBI, EMBL, DKFZ and industry presenting their career paths and sharing tips on how to succeed in bioinformatics. Katrina Pavelin from EMBL-EBI and Barbara Janssens from the DKFZ co-organised and co-hosted the event. For more information, see: www.ebi.ac.uk/training/careerday

So much more to know...

Every year, EMBL researchers answer thousands of fundamental questions that cover the spectrum of molecular biology. But what are the 'big' questions that those working in the lab would love to find the answer to? Here, scientists from across EMBL's sites offer their thoughts.



How do cells sense where they should go?

From bacteria that follow a glucose source to neurons that follow a morphogen gradient, cells have developed mechanisms to pick a trail that is to their benefit. Although much is already known about the molecules that retract and repel, the way cells follow the trail is still a mystery. The unravelling of these path-finding mechanisms will have many implications, they will further understanding in tumour biology, and may reveal how a beautiful mind emerges from a dazzling tangle of neurons.

Rob Meijers, group leader, EMBL Hamburg



How does stress impact on our biology?

We know that a stressful life can make a person more susceptible to diseases such as cancer. While researchers can study chemical stresses on the body such as that caused by smoking, it is increasingly recognised that mental stress can also have such adverse effects. How can we find the molecular or physiological source of this stress? How is it being produced in our system? Why does it make us more prone to diseases? Answering such questions is one of the biggest challenges in modern biology.

Ozge Vargel, predoc, EMBL Monterotondo



What makes humans human?

Humans are able to grasp, understand, and react to abstract concepts. Neither computers nor animals seem to be able to do that, or at least not to the extent humans can. So what is the difference between them and us? Since many genes are shared between us and other animals, especially vertebrates, is it their regulation that makes the difference? Might it be the network of neurons in our brain and their physical interaction? Is our consciousness just an emergent property of this complex network and we are not able yet to understand or simulate it properly? I am very curious to see how science will approach this question in the coming decades.

Silvia Rohr, predoc, EMBL Heidelberg



When will we map the entire human proteome?

The Human Genome Project has raised more questions than it has solved – even knowing the sequence of all 20 000 human genes doesn't tell us how cells work. Structurally characterising the entire human proteome in its entirety – with all its differences between different kinds of cells – and a complete map of interaction networks, could enable us to take a step forward and understand deeper levels of biological complexity. Knowing the alphabet we managed to read the letter sequence, now we have to learn more about the rules underlying the words of one of the greatest books that Nature has written – the human genome.

Piotr Gerlach, predoc, EMBL Grenoble



How do transcription factors work?

Transcription factors, which influence the activities of many genes, are especially important during development. We have learned a great deal about the processes they regulate and, more recently, become very good at mapping where they form chemical bonds on DNA. However, we still understand little about exactly what they do to regulate transcription – the process in which genetic information stored in a strand of DNA is copied into a strand of RNA – and how such mechanisms vary from one factor to another. Learning more about this will help us better understand how gene expression is regulated and could lead to breakthroughs, for instance in gene therapy.

Mikhail Spivakov, postdoc, EMBL-EBI

Putting EMBL alumni on the (Google) map

Former Sattler Group predoc, Phil Selenko, was one of more than 800 alumni who participated in the EMBL alumni feedback survey. His suggestion on how to best utilise alumni resources was to create a Google map “to localise alumni around me ... and don’t tell me that can’t be done.”

Phil’s challenge was accepted! A link to the map is now available on the alumni webpages via a map icon. Pins mark the countries where EMBL alumni work, as well as revealing further details on the numbers of alumni in each country, and listing the cities and institutes with the largest alumni populations. From here there is a direct link to the EMBL search engine, enabling users to browse a list of alumni by country and city, with links to institute homepages.

In fact, you can now search for alumni by name, institute, city, or country on the EMBL website. You’ll find all alumni who are registered members of the EMBL Alumni Association, as well as a link to their institute’s website, if provided. This much-requested feature received more than 200 positive responses within a week of being launched.

Phil, now a group leader of the In-cell NMR group at the Leibniz Institute of Molecular Pharmacology (FMP Berlin), has reviewed the map: “Nice start, well done!” was his response. If you have further suggestions, get in touch: alumni@embl.org

⇒ The Google map is one of a number of new features to enhance the alumni webpages, visit www.embl.org/alumni



Mark your diaries

30 June–1 July Dilofo, Ioannina

Alumni meeting – Greece

Saturday, 30 June, 10:00–18:00

EMBL Speaker: Christoph Müller

Host: Anastasia Politou

5 July EMBL ATC, Heidelberg

John Kendrew Award ceremony

Winners: Gáspár Jékely, Simone Weyand

Presenter: Jochen Wittbrodt

6 July EMBL ATC, Heidelberg

Alumni Association Board Meeting

Send your agenda items to alumni@embl.org

7 July EMBL ATC, Heidelberg

Staff-alumni meeting – Germany

Organisers: Freddy Frischknecht and Mehrnoosh Rayner

Followed by the EMBL Summer Party

24 September Acropolis, Nice

Staff-alumni meeting – France at The EMBO Meeting

23 November EMBL Monterotondo

Alumni Association Board Meeting

Followed by staff-alumni event – Italy

For further details please visit the EMBL Alumni Association website www.embl.org/alumni or contact alumni@embl.org.

Greetings from Mount Doom

Last issue, EMBL alumni were invited to share their ‘views’ – quite literally! – by sending inspiring photos of life beyond EMBL.

Chris Creevey, former postdoc from the Bork group at EMBL Heidelberg, contributed a stunning image from atop Mount Ngauruhoe on New Zealand’s North Island, famous for starring as ‘Mount Doom’ in the *Lord of the Rings* movies.

This awe-inspiring spot was close to where Chris, now a lecturer in computational biology at Teagasc (the Irish Agriculture and Food Development Authority), spent three months on a research exchange with AgResearch, in Palmerston North.



EMBL exports to Greece

Training young scientists – alumni help spread the word

At the alumni meeting in Greece last year, participants enquired about training opportunities for young Greek researchers at EMBL. Director of Core Facilities and Services Christian Boulin encouraged them to spread the word amongst

young researchers in their groups and networks to apply to the EMBL Visitor Programme. And so it was that Chris Papadimitriou visited the EMBL Genomics Core Facility for three-months' training earlier this year.

“Without EMBL alumna Zoe Lygerou, who established the contact, I might never have known about this opportunity,” says Chris (pictured), who is now back at the University of Patras, continuing his Master’s thesis on the role of DNA replication inhibitor, Geminin, in hematopoiesis.

“The experience enabled me to continue my research more efficiently and productively. I trained on DNA microarray experiments under the supervision of Vladimir Benes, Head of the Genomics Core Facility, and learnt the methods and techniques for performing a successful experiment from beginning to end. I also started analysis and interpretation of the microarray data using bioinformatics tools.

“It was rewarding to work with such cutting edge technology, and to benefit from the expertise of the Gene Core technicians who did their best to share their knowledge and experience.”

After completing the data interpretation of his microarray experiments, Chris plans to move into regenerative medicine – a field based on molecular biology that uses stem cell research with the aim of eventually benefiting patients.

➤ The next alumni meeting in Greece takes place 30 June in Dilofa, attended by Joint Head of the Structural and Computational Biology Unit, Christoph Müller.



From keyboard to quay-side in Crete

Lowering a handheld device over the side of the boat, EMBL alumnus and bioinformatician Evangelos Pafilis calls out to principal investigator Christos Arvanitidis to bring up the previous sample in the sun-drenched bay. His team, based at the Hellenic Centre of Marine Research in Greece, study marine biodiversity and genomics in the East Mediterranean.

At sea

Today, they are working as part of an initiative to monitor pollution in tourist port areas in Crete. Other days might involve connecting with local fishermen to understand the macro- and micro-organisms residing in the Amvrakikos Gulf, or engaging members of the public in dive trips to record populations of local marine animals.

“Our field studies are a great opportunity to come away from the computer for a few days and get closer to nature,” Evangelos explains. “We study different environments and we can learn a lot about the health of different ecosystems. By working together with local fishery communities and authorities, we can also propose measures that can be taken to improve the environment – it is science that is really applicable to local society groups.”

Fresh thinking

The rise of genomics has opened up tantalising opportunities to recast problems in fields connected to biodiversity, such as ecology, as challenges in computational biology. “Our aim is to link information from several layers – from genes all the way up to ecosystems,” says Evangelos, who did his PhD in the Schneider lab at

EMBL Heidelberg. “There has been a lot of progress in areas such as literature mining, information visualisation, and network analysis over the past few years. This has presented exciting challenges, for instance following up samples with sequencing and population studies to compare different environments at the molecular level. We are currently studying remediation techniques for petroleum pollution in three different ports around the Mediterranean. Other studies, such as in metagenomics, focus on the function of different organisms in samples taken.”

Citizen science

Involvement in scientific outreach projects has brought fresh dynamics to the research, enabling members of the public to contribute first-hand to science. “Participants are interested in diving and seeing the animals with their own eyes, and in understanding more about the local marine ecology,” Evangelos explains. “We also speak to people at the institute’s aquarium about how our research areas interconnect, organise workshops, and mobilise student researchers to adopt the new research methods that we are developing.”

Evangelos’ main objective – mining literature and developing interfaces to bridge gaps between genetics, environmental parameters, and biodiversity – has clear parallels to hands-on fieldwork. “There are lots of connections between fishing out samples from the sea and digging out information from databases,” he says. “I’m learning a lot, applying many skills gained during my time at EMBL – the work is fascinating and inspirational.”



Top to bottom: Evangelos and Christos out on the water; the citizen-scientist project in action; Kostas, a local fisherman in Amvrakikos Gulf



Helping to put the 'fun' back in funding applications, EMBL's Grants Services: Phil, Jill, Sonja, and Virginia

Grant applications

Among the great mysteries of science you might count the biological basis of consciousness, or the existence of alien life... but niggling at the mind of many hardened researchers is the perennial question: 'how do I write a successful grant application?'

On hand to help solve this great enigma is Grants Services, based in Heidelberg, which offers support for all EMBL staff in grant-related matters. The team recently expanded with two new members – Sonja Noss and Virginia Otón – who join Jill Rowe and service head, Phil Irving. Each member is responsible for a particular EMBL unit and outstation. In the first of a series of 'top tips', they give some handy hints for successful grant applications:

- 1 Creating a successful proposal depends on **thorough preparation**. Develop a feasible timeline and be realistic about how long it can take to write and revise the application.
- 2 **Respect deadlines** imposed by funding bodies (both date and time) – these are absolutely inflexible. Prepare your application well in advance.
- 3 Ask someone to **check your application** and give constructive feedback, ideally a scientific peer or colleague (who is fluent in the application language).
- 4 Research the **funder's 'philosophy'** and reflect this in your application. Consider how to match your proposal to their requirements, mission, and areas of interest.
- 5 Carefully **read the guidelines** and take note of any special instructions or clues for content and formatting – this may seem tedious but will help avoid basic mistakes.
- 6 Don't overlook the budget. A realistic and well thought-out **financial plan** helps to create confidence in the proposal generally.
- 7 It is **EMBL policy** that only group leaders may apply for research grants (individuals may apply for fellowships). In general, only the Director General, Administrative Director and Head of Finance can sign contracts or grant agreements.
- 8 Consider any **ethical implications** of your proposed research and be transparent about these in your application. Make sure you apply for necessary approvals in good time.
- 9 Remember, all applications *must* be **sent to Grants Services**. They must receive a copy of the application at the latest on the submission date.
- 10 If in doubt, or for more information, **get in touch** with Grants Services at grants@embl.org

A New World for hands-on EMBL-EBI training

In March, EMBL-EBI training experts James Watson and Gabriella Rustici took the EBI's training resources on their maiden voyage to South America, with hands-on workshops in Chile and Argentina.

Students from across South America gathered to find out more about EMBL-EBI and to gain practical experience in resources relating to functional genomics, molecular interactions, enzymes, and proteomics.

Workshops were hosted at the International Society for Computational Biology conference on Bioinformatics in Santiago, the Pontificia Universidad Católica de Valparaiso, and the University of Buenos Aires. Responses from participants were highly positive.

"The students were extremely keen and enthusiastic," says Gabriella. "Bioinformatics in South America is on the rise and many people at the University talked to us about establishing a stable training collaboration between Europe and Argentina, teaming up with the Asociación Argentina de Bioinformática y Biología Computacional (A2B2C)," she adds. "This is an exciting opportunity and we hope to be able to organise similar events in Buenos Aires next year."



Terrific tomography

This image from EMBL's Electron Microscopy Core Facility, published in *Cell's Current Biology*, gives a 3D model of microtubule organising centres in cells, frozen at high-pressure and processed for EM-tomography analysis. The research gives insights into the development of the architecture and biochemical events required for meiosis in fission yeast. In the model, microtubules are green and the different coloured caps indicate the microtubule end structure. Spindle pole bodies are modelled in blue and lamellar bodies highlighted in black. The nuclear envelope is shown in pink, and the plasma membrane is shown in turquoise.

science&society

Our culture is based on our striving for immortality, but if we achieved this improbable reality, the motor of civilisation would sputter and stop, writer Stephen Cave told the audience at EMBL Heidelberg during a Forum lecture in May. Here he considers some of the key points of his talk.

You argue that human culture is based on our striving for immortality. Could you go into a bit more detail?

Social psychologists have carried out many hundreds of experiments that aim to explore different aspects of our world-view, from patriotism to religion. So far, their results consistently support a thesis – known as Terror Management Theory – that particular aspects of our outlook are governed by our need to manage our fear of death. In other words, our cultural, philosophical, and religious systems exist to promise us immortality.

Every civilisation has had such systems. They are embodied in the pyramids of Egypt, the cathedrals of Europe, and it is also a central part of what modern biology and science is striving for. But, ultimately, we are not going to achieve immortality – and that is for the best. While most scientists are sensible in the way they report results, there are people out there – so called prophets of our time – who are promising an elixir of life – and I think that is dangerous.



What problems does this cause?

Firstly, it can bring science into disrepute if you promise things that you cannot deliver. Secondly, it promotes a very black and white view of the world, as we see in the endless stories of how this or that foodstuff “causes” or “cures” cancer. In reality, life is full of very complex and nuanced decisions requiring the balancing of risks and probabilities. Finally, I believe it prevents us from leading a wise life – wisdom means recognising that our time is limited, and therefore that we have a reason to make the most of it. If we believe we have all the time in the world, we lose the impulse to get up in the morning and make the most of the here and now.

Where does science fit in to all of this?

Science is the vocabulary in which we retell these ancient immortality stories so that they

speak to our generation. So we hear stories about how cryonics, nanotechnology, or digital technologies will help us somehow live forever. All of these are simply retellings of ancient myths of resurrection or an elixir of life. On the other hand, science also sheds light on the plausibility of these stories. Take for instance the concept of the immortal soul: there are philosophical arguments against this, but it is only recently that science, by allowing us to peer into the living brain, is also showing that this story is extremely implausible. Still, I do not expect to convert anyone to scepticism – these immortality stories have deep roots – but I at least hope to help people by putting their beliefs into a broader context.

⇒ For details of upcoming lectures, and recording of past presentations, visit www.embl.de/aboutus/science_society

CommHERE.

Communicating European Health Research

CommTogether

EMBL's communication experts are taking part in a 2 million Euro project that brings together specialists from ten research institutes across Europe to raise awareness of European-funded health research projects.

The objective of CommHERE is to improve connections with the media, general public, and other target groups by increasing communication activities on research through press releases, new media channels, and outreach activities. Another key aim is to provide principle investigators with resources and incentives to promote communication beyond the scientific community.

CommHERE will play a key role in enhancing communication on the outcomes of projects coordinated by EMBL, such as FLU-PHARM (to identify new drugs against influenza), COMPLEX INC (to produce complex assemblies of biological compounds), and SYBARIS (to study

genetics and develop new drugs to fight fungal infections), as well as numerous European Research Council-funded projects being carried out by EMBL scientists.

A meeting, which took place at EMBL Heidelberg in May, was the second time teams from high-profile institutes including EMBL, the Karolinska Institute, Imperial College London, the Max Planck Institute of Biochemistry, Inserm, and more, have convened together as part of the three-year project. In the coming weeks a set of media guidelines will be developed to support public relations professionals and raise awareness of best practices.

"Thanks to EMBL's expertise in establishing an efficient and pertinent dialog with international science journalists, our team took the lead in organising media relations for the whole CommHERE project," says Lena Raditsch, Head of Communications at EMBL.

Monsters or models?

The use of animal-human chimeras as models for research was debated during a recent EMBL Forum lecture at EMBL Monterotondo,

Speaker Robin Lovell-Badge gave a behind-the-scenes look at his role in producing a report for a working group for the Academy of Medical Sciences in the UK – which brought together key stakeholders such as scientists, philosophers, ethicists, and members of the public to produce a position paper on the issue. Robin, who works at the

National Institute for Medical Research, explored advances in the field such as the generation of mice that carry an entire human chromosome 21 as a model for Down syndrome and the potential impact of a new EU directive on animal research. He also took part in a lively roundtable discussion with students on some of the key questions raised in the report relating to societal implications, engagement, and regulation.

"It is really important for scientists to have a dialogue with the public and policy makers. If people do not understand the reason why you do what you do, it can affect support for that – it might be that

Going for gold

Ahead of this summer's Olympic games, participants at a conference organised by staff at EMBL-EBI discussed the science helping athletes to get their hands on medals. Genetics, physiology, nutrition, and psychology were the headline topics at 'Going for Gold: the Science behind Sporting Success' on 10 May.

Speakers included Alun Williams (University of Manchester), who discussed if and how genetic difference impacts performance; Robert Gray (University of Birmingham), who considered how thought, perception, and movement can be the difference between success and failure; and David Fletcher (Loughborough University), who told a personal story of near-Olympic success.

The event stimulated lively and interactive discussions amongst the 100-strong audience. "The evening provided a thought-provoking look at the psychology and genetics of elite athletic performance," says EMBL-EBI's Paul Flicek, who chaired the event.

To keep in touch with EMBL-EBI science and society events, email Louisa Wood: louisa@ebi.ac.uk.



Left to right: Paul Flicek (moderator); Robert Gray (intuitive learning), Alun Williams (genetic influences on performance) and David Fletcher (sports psychology).

the situation becomes more restrictive and you may no longer be able to carry out the research," Robin said.

⇒ EMBL Monterotondo's distinguished visitor lector series reached the end of a successful second year with presentations from Genevieve Almouzni (Institut Curie and CNRS) and Rudolf Jaenisch (Whitehead Institute and MIT) in April. The initiative, coordinated by Sara Buonomo, brings leading life scientists to the outstation, including Nobel laureates and winners of other major scientific prizes.



Robin (left) speaks to staff following the lecture at EMBL Monterotondo

talkingpoint

Andrew Robertson, coordinator of the EMBL International Centre for Advanced Training, delivered a lecture to staff from across EMBL sites during the Admin Assembly in May.

The talk, which was part of a new initiative to enable staff to learn in depth about the work happening across EMBL departments and groups, gave an overview of external scientific training in the context of the overall EMBL mission, as well as introducing the people involved, key objectives, and delivering an idea of the opportunities that lie ahead.

His talk followed a presentation by joint head of the Genome Biology Unit, Lars Steinmetz, who identified topical issues relating to how the falling cost of genome sequencing could impact on everyday healthcare in the coming years. Both talks were warmly received and stimulated lively and informed discussion amongst the audience in the Large Operon at EMBL Heidelberg.



A HUB of activity

The stereotype of the computer scientist as a recluse hidden behind a screen couldn't have been further from reality at an aptly named event in Heidelberg on 26 April. The first event in the HUB (Heidelberg Unseminars in Bioinformatics) series was indeed a buzzing hub of intellectual activity.

Forty participants from 10 institutions around the city convened at Heidelberg University for an event that brought together scientists working in bioinformatics to debate and discuss a key theme: challenges for systems biology.

The meeting, organised by people based at EMBL, EMBO, and other institutions in Heidelberg, gave participants the opportunity to take part in moderated discussions, or give five-minute 'flash-talks'. Areas covered included collaborations between bench and computer scientists and the role of bioinformatics in bringing about personalised medicine. The event began with an introduction by Thomas Lemberger, Chief Editor of *Molecular Systems Biology*.

Anyone who wished to do so was invited to put forward suggestions in the weeks leading up to the event and the evening concluded with participants proposing themes and discussion topics for the next editions. These will soon be available for the community to expand upon on the HUB wiki along with a summary of the first event's discussion sessions. <http://hub-hub.de>

GSK buys Cellzome

Acquisition follows four years of successful collaboration between Cellzome and GlaxoSmithKline (GSK)



Left: Gitte Neubauer, head of Cellzome. Right: The Cellzome labs in Heidelberg

In May, GSK bought EMBL's spinout drug discovery company Cellzome for £61 million by acquiring the shares in the company that it doesn't already own (80%).

Cellzome, which was founded at EMBL in May 2000, uses proteomics technologies in early drug discovery to assess drug interactions with target proteins in a setting which more closely represents that found in a whole biological system. This approach enables the development of selective drug candidates and can allow scientists to better pinpoint potential safety issues

earlier in the development process. Cellzome will be integrated into GSK's R&D organization but will retain its name and identity: 'Cellzome, a GSK company'. Gitte Neubauer, a founder of the company is now leading Cellzome.

"This acquisition will allow us to use our technology to tackle important drug discovery challenges and at the same time expand our network of academic collaborations," says Gitte, who is also an EMBL alumna. "We have always maintained the EMBL heritage of a high scientific reputation and this will continue also as part of GSK."

Finding maths where you least expect it: *Eleanor Hayes* speaks to Marcus du Sautoy

“I’ve got very sore feet this morning from walking the tightrope.” Somehow, that doesn’t fit my stereotype of a mathematician – but then I am talking to Marcus du Sautoy. As he says, “I’m keen to break down the stereotype of a mathematician: a social recluse hiding behind a beard. I haven’t got a beard, or glasses, and I’m keen to get out there and show people that mathematicians aren’t weird.”

And he certainly does get out there. While we’re talking, he’s being driven from the BBC in London, where he’s been discussing CERN’s Large Hadron Collider, to a planning meeting for the Wiltshire Music Festival. And the day before he was at a circus school, filming a programme about how the human brain learns new skills. Hence the sore feet.

Marcus clearly relishes being the professor of the public understanding of science at Oxford University, UK. “It’s a hugely varied job – making television programmes, doing radio interviews, giving lectures – and that’s what I find so exciting about it.”

Isn’t a mathematician an odd choice for the job, though? “Other sciences often rely on mathematics to articulate their discoveries and predictions. As we speak, everyone’s getting excited about the announcement of potential evidence for the Higgs boson at CERN, but the Higgs boson couldn’t have been predicted without mathematics. Maths is the language of science, so in some ways having a mathematician as a professor for the public understanding for science is the best of all possible worlds.” He then adds, “but I would say that, wouldn’t I?”

Marcus believes that maths even affects how we perceive the world. “Most people think that maths is about long division to lots of decimal places. Really, though, a mathematician is someone who looks at structure and pattern – and in a sense that’s how everyone reads the world: we’re all mathematicians at heart. Part of my mission is to reveal to people that if, for example, they love listening to music, they are probably listening to it in a very mathematical way, spotting patterns and structures, bits that are similar but changed – perhaps in a symmetrical way, having been turned upside down.”

“Other sciences often rely on mathematics to articulate their discoveries and predictions”

– Marcus du Sautoy

Unsurprisingly, perhaps, symmetry is the focus of Marcus du Sautoy’s research. The focus in his book *Finding Moonshine* on the 19th century mathematician Évariste Galois emphasises this. “He died in a duel at the age of 20, perhaps over a lover,” says Marcus, “but he’d already discovered so many extraordinary things, including a way of looking at symmetry very algebraically and linguistically. I’d love to go back in time and warn him not to fight that morning, and then spend that time with him discussing how he came to create the language we use to understand symmetry. It is incredibly important across all of the sciences: crystal structures, for example, are all to do with



symmetry; viruses are very often symmetrical in shape and that’s key to why they’re virulent and so strong.”

While Galois did not have time to reach his full potential, Marcus is unlikely to be found dueling any time soon. And despite his exploits on the high wire, he feels there are plenty more mathematical discoveries to come. “Maths is about forging into the unknown and discovering something new and useful. And there are still a few more conjectures I’d like to prove, to look back on and think ‘wow, I contributed to that extraordinary edifice we call mathematics.’”

For more from Marcus, visit www.scienceinschool.org



Ciao Bella!

Clockwise from below: Farewell flowers for Nadia Rosenthal, at her leaving event at EMBL Monterotondo in May; Peter Gruss, President of the Max Planck Society, talks science and art; enjoying the evening’s entertainment, courtesy of EMBL’s in-house band; a gift from former students; reception in the EMBL Monterotondo courtyard





EMBL's own inhouse band, Black 6, perform at Nadia Rosenthal's leaving event in Monterotondo



The Wellcome Trust's Elizabeth Murchison receives the 2012 Eppendorf Award at a ceremony at EMBL Heidelberg in May



Claude Antony speaks to Spanish visitors from the Universidad Francisco de Vitoria in EMBL's Electron Microscopy Core Facility



Runners from the Molecular Medicine Partnership Unit finish this year's gruelling Heidelberg half marathon



Girls' Day brings 15 young women to EMBL to get a flavour of life in the lab in April



Summer arrived! – at least for a few days – as witnessed outside EMBL's Advanced Training Centre in Heidelberg

newsinbrief

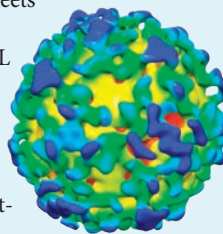
⇒ The new **guide to EMBL-EBI's data resources** has been published. This new brochure provides accessible overview of EMBL-EBI's bioinformatics data resources. To view online, visit: www.ebi.ac.uk/information/brochures

⇒ EMBL DG Iain Mattaj was among 22 renowned scientists and Laureates who signed a petition **in support of Greece** and its institutions, published in *Science* in May. A supporting letter by Nobel Laureate Harald Zur Hausen accompanied the 'Support Greece' petition.

⇒ The European Commission has expressed its appreciation of EMBL's **position paper on Horizon 2020** – a proposed 86 billion Euro framework for research and innovation that will run between 2014 and 2020. In a letter to EMBL DG Iain Mattaj, Commissioner for Research, Innovation and Science, Máire Geoghegan-Quinn, ap-

plauded EMBL's calls for an integrated approach, steps towards simplification, and the need to enhance the proposed budget. Recommendations made by key stakeholders will be taken into consideration ahead of a final decision regarding allocations of funding.

⇒ There's more than meets the eye in this issue's **cover image** – EMBL Heidelberg's Briggs group reveals a shape-shifting protein that allows cells to transport different-sized molecules.



⇒ Registration is now open for the following EMBL-EBI **hands-on bioinformatics training courses**: Joint EBI-Wellcome Trust Proteomics Bioinformatics workshop, 4–9 November (register by: 6 July); Programmatic Access to Bio-

logical Databases (Perl), 1–5 October (register by: 6 August); EMBO Practical Course on Analysis of High-Throughput Sequencing Data, 29 October–3 November (register by: 24 August). www.ebi.ac.uk/training/hands-on.

⇒ A seminar held on **supranational administration** brought specialists in international administrative law to EMBL Heidelberg, 6–8 May. Organised by the International Institute of Administrative Sciences, representatives from more than 40 international organisations were present to discuss issues such as the impact of new technologies, the current global economic climate, and staff mobility within and between organisations. "The meeting allowed us to showcase EMBL and our world-class research and facilities as an employer of choice," says Dominik Reske, EMBL's legal advisor.

events@EMBL

26–27 June EMBL Heidelberg

Summer Council Meeting

27 June EMBL Heidelberg

Meet Your Council Delegate Over Lunch

25–29 June EMBL-EBI

Joint EMBL-EBI & Wellcome Trust Summer School in Bioinformatics

27–29 June EMBL Heidelberg

Course: Whole Transcriptome Data Analysis

29 June EMBL Monterotondo

Distinguished Visitor Lecture:

Brigid Hogan, Duke University Medical Center, Durham, USA

2–6 July EMBL-EBI

Joint EMBL-EBI & Wellcome Trust

Course: Resources for Computational Drug Discovery

2–6 July EMBL Heidelberg

Course: Advanced qPCR Techniques for Publication Success: Following MIQE Recommendation

4 July EMBL Heidelberg

Heads of Units/ Senior Scientists Meeting

4 July EMBL Heidelberg

Career Day

5 July EMBL Heidelberg

Lab Day

7 July EMBL Heidelberg

EMBL Summer Party

10–13 July EMBL Heidelberg

Course: Basic Light Microscopy

17 July EMBL Heidelberg

Science and Society Forum Lecture:

The price of altruism, Oren Harman, Bar Ilan University, Israel

25–27 July EMBL Heidelberg

Conference: Microfluidics 2012

25–28 August EMBL Heidelberg

Conference: Transcription and Chromatin

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

people@EMBL



Ari Himma is the new head of Human Resources. Ari has more than 17 years' experience managing HR functions in various global industrial and service companies and has also acted as a partner within HR consulting. Before joining EMBL he worked as HR director for Inspecta Group. Ari has a master's in political science from Helsinki University and also has a strong interest in history. "It is exciting to be joining such an intellectual, international, and supportive environment," says Ari.



Jonas Ries joins EMBL Heidelberg in July as a group leader in the Cell Biology and Biophysics Unit. Jonas completed his PhD and postdoc at Dresden University of Technology using fluorescence correlation spectroscopy to study membranes. He joins following a Marie Curie fellowship at the Swiss Federal Institute of Technology in Zurich. The Ries group will develop super-resolution microscopy methods such as automated localisation microscopy for genome-wide super-resolution imaging.



Astrid von Soosten joins EMBL as Head of Resource Development. Astrid is responsible for philanthropic income and fundraising at EMBL. She has 15 years fundraising experience, including the past four years as Senior Director of Library Development at the University of California, Santa Cruz. Originally from Germany, she aims to build a comprehensive philanthropy programme and raise money for important science and research projects across EMBL's sites. Amongst other talents, Astrid has a master's in Chinese.



Stephanie Suhr is the new project manager for BioMedBridges, and is based at EMBL-EBI. Stephanie has a PhD in oceanography and joins following positions in the US Antarctic Program and the European XFEL in Hamburg as well as science publishing. BioMedBridges is an ambitious four-year project that will bring together the ESFRI Research Infrastructures in biological and medical sciences, and promote interoperability between data and services in biological, medical, translational, and clinical fields.

awards&honours

What a Dame!

Janet Thornton, Director of EMBL-EBI, has been made a Dame Commander in the Order of the British Empire in recognition of her contribution to bioinformatics – the first such recognition in the field.

"This great honour represents the work of the many outstanding scientists with whom I have worked throughout my career, and I hope they all feel that this recognition of our field is down to their efforts," says Janet. "In our own small way, each of us is working very hard behind the scenes to empower life scientists throughout the world to make discoveries that will benefit society as a whole."

Janet has been director of EMBL-EBI since 2001. She is a Fellow of the Royal Society, a Member of EMBO and a foreign associate of the US National Academy of Sciences. She received her CBE in 2000.

