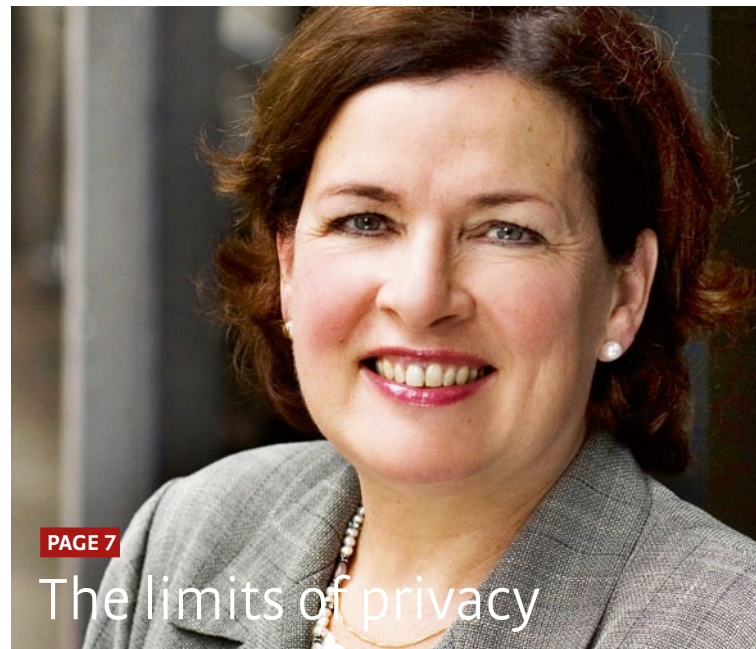


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The San Francisco Declaration on Research Assessment

More than 7000 scientists and 250 science organizations have by now put their names to a joint statement called the San Francisco Declaration on Research Assessment (DORA; am.ascb.org/dora). The declaration calls on the world's scientific community to avoid misusing the Journal Impact Factor in evaluating research for funding, hiring, promotion, or institutional effectiveness. Here EMBO Director Maria Leptin discusses some of the concerns and also provides her personal perspective about the use of Journal Impact Factors and the significance of the recommendations.

On May 16, scientists, editors, publishers, societies and funders from many disciplines took action. By publicly signing the San Francisco Declaration on Research Assessment, they officially declared that the Journal Impact Factor is being misused. EMBO actively participated in drafting the declaration and was one of the early signatories on the document. I also supported the DORA position statement as a scientist. Inappropriate use of the impact factor has infiltrated the scientific community to become an unwanted and pernicious mark of quality for science and scientists. It is pernicious in the sense that the simplistic use of metrics can give a skewed view of a researcher's achievements. The problem is not restricted to individuals. Misuse of impact factors can also influence decisions on the fates of university departments and institutes as well as national decisions on the future of scientific programmes. Many scientists are worried about the way in which the impact factor is used in the assessment of research and this is one of the first occasions that there has been a broad call to action.

DORA has 18 recommendations that are relevant to researchers, funding agencies, institutions, publishers and organizations that supply metrics. The shared message for all audiences is that journal-based metrics, such as impact factors, should not be used as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions. Several excellent editorials and commentaries have been published already and I encourage readers to consult these articles that focus on different aspects of the declaration [1-4].

DORA encourages publishers of scientific journals, which include EMBO, to reduce the emphasis on the impact factor as a promotional tool either by ceasing to use it or by providing a balanced presentation of multiple metrics that provide a more differentiated view of journal performance. But we as scientists must also be aware that our own behaviors as authors, referees and members of evaluation panels and search committees have contributed to the role the impact factor plays now.

The problem does not lie primarily with the impact factor itself. Metrics are not inherently bad but they become counterproductive when used incorrectly. The impact factor was developed to compare journals and to assist librarians in making decisions on subscriptions. There is nothing wrong with this, but it does not make sense to use the impact factor to compare the quality of research or researchers. If one wanted to rely on metrics at all to judge individual scientists, metrics that assess the performance of individual researchers and differentiate between the work of researchers in different areas of research would be more appropriate, such as the *h*-index or article-level, rather than journal-level, metrics, including citations; but these too need to be used critically, fairly and have limits.

Another problem with using the impact factor to compare research is that it is a single metric for the whole range of the life sciences. Important distinctions between research fields have to be taken into consideration. Scientific communities differ in size and focus. Accordingly, papers from smaller fields of research are likely to be cited less frequently. As a consequence, a journal that is highly regarded in one community and in which it may be very difficult to publish, may have a lower impact factor than a mediocre journal in another, larger discipline. For generalist journals that represent multiple communities, the equations become increasingly difficult to solve: they have both to attract high citing papers from 'hot' areas but also remain fair and publish excellent research from low-citing fields, at the risk of accumulating a 'long tail' of low-citing papers that decrease the impact factor below a critical threshold (Figure 1).

It would not be sensible to take the extreme position that journals do not matter. Ideally, a scientist should be evaluated on the content of his or her publications, not on the names or impact factors of the journals in which they publish. But when search committees or grant

panels have to evaluate more than a hundred applicants to establish a short list for in-depth assessment, they cannot be expected to form their views by reading the original publications of all of the applicants.

I believe that the quality of the journal in which research is published can, in principle, be used for assessment because it reflects how the expert community who is most competent to judge it views the science. There has always been a prestige factor associated with the publication of papers in certain journals even before the impact factor existed. This prestige is in many cases deserved. Publication in the best journals matters not because of the association with the impact factor, but because of the high standards of the journals, their staff and the value that comes from the peer review process. It is generally accepted that a consistent publication record in quality journals – however quality may be judged or measured – does reflect excellence in research.

When the impact factor is misused everyone suffers: the scientist who has to try to publish in high impact journals that may not even exist in his or her field, the journal that is prestigious but has an impact factor that is insufficient to attract articles from scientists who are increasingly under pressure to collect credit points in the form of high impact factors, and the institutions and university departments which may find it difficult to achieve or retain diversity and breadth of scientific scope. We, the scientists, both as authors and as evaluators, should stop being obsessed with the impact factor, but we should not throw out the baby with the bath water and assume that the quality of journals is irrelevant.

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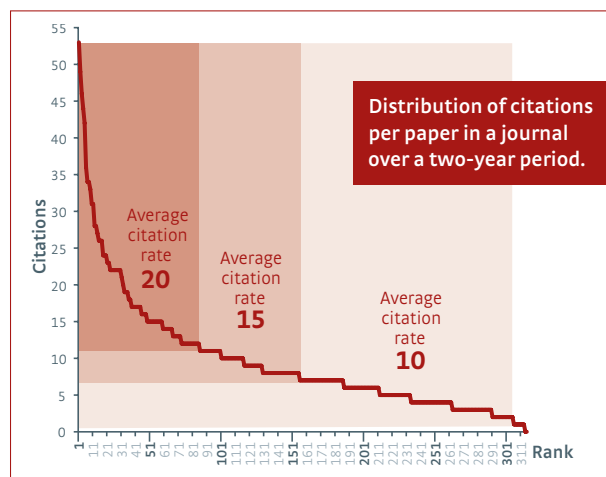


Fig. 1 | Papers are ranked by number of citations. The shaded boxes show the average number of citations for the papers in each box, which would correspond to the impact factor of the journal if only those papers had been published.

Life sciences in Portugal: progress despite recession

Science in Portugal benefits from generous private donations but needs to provide long-term stability for individual researchers. The budget has remained stable, yet has to be distributed to a growing pool of researchers.

In 1998, when Bruno Silva-Santos left his home country to study for a PhD in the United Kingdom, he doubted he would ever come back. Portuguese science was not competitive internationally and did not hold much promise to young aspiring scientists. A few years later things looked entirely different. The Portuguese government increased the science budget, new institutes were founded, and new grant schemes introduced. In just one decade, spending on research and development in Portugal more than doubled reaching 1.5 percent of the Gross Domestic Product in 2010. The way was open for the young PhD scientist to come back to his



Bruno Silva-Santos

home country and set up his first laboratory in the Lisbon-based Instituto de Medicina Molecular (IMM), one of the country's top research institutes that will celebrate its tenth anniversary in 2013 (see also *EMBOencounters* issue 21). Silva-Santos applied for several national grants and was successful. An EMBO Installation Grant and Young Investigator Award received in 2007 and 2011, respectively, cemented his position as an outstanding group leader in Europe. In addition, in 2010 he received a prestigious Starting Grant from the European Research Council. Silva-Santos is one of 26 Portuguese investigators to have received an ERC grant to date.

The situation today has changed. Like many other European countries, Portugal was severely hit by the recession. Although the budget for science has remained stable, the same funds have to be distributed to twice as many researchers. In the boom years between 2005 and 2010, the number of full-time scientists in Portugal more than doubled to reach 46,000 people.

"The present funding situation is critical," the 39-year-old scientist says. "A lot of good people came back to Portugal and established internationally competitive laboratories, but most of their projects – even if rated outstanding by the evaluation boards – are not financed anymore."

Although Portuguese government has remained committed to science, decreasing national revenue has also resulted in less spending on science infrastructure.

On the positive side, there is still an active scientific community with many foreign students, postdoctoral researchers and investigators. "Researchers in Portugal have enlarged their network of collaborations, making it more international," Miguel Seabra, President of the Foundation for Science and Technology (FCT), one of the main grant-awarding agencies in Portugal, says. The number of publications with international co-authorship tripled between 2000 and 2010. And Portugal has more young PhD holders than the average in the European Union.

EMBO has contributed to the life sciences in Portugal in many ways. Ten Portuguese researchers have received EMBO Installation Grants since 2006 – a package of benefits including financial support for group leaders who set up a laboratory in their home country after working abroad. Several EMBO workshops and practical courses were held in Oeiras and Lisbon in the past two years, and at least two courses and workshops are planned for Portugal in 2014. "Portugal continues to be an attractive location for high-quality scientific meetings. Approximately 150 Portuguese researchers, several of whom were supported with EMBO travel grants, participated in our courses and workshops in recent years," Anne-Marie Glynn, Head of EMBO Courses & Workshops, says.

Strong private sector.

One outstanding feature of the Portuguese scientific infrastructure is the strong presence of privately financed research centres. The latest example, the Champalimaud Research Centre for the Unknown in Lisbon, has the potential to become a world-class research institute. The centre was inaugurated in October 2010, and is gradually increasing its capacity to 500 researchers working with 100 physicians who see around 300 patients daily. It focuses on clinical research into cancer and basic research into neurosciences. The philanthropist behind the project, wealthy Portuguese businessman António Champalimaud, allocated a quarter of his wealth to medical research as part of his legacy.

Another influential private research centre is the Instituto Gulbenkian de Ciência of the Fundação Calouste Gulbenkian (named after its Armenian-born founder and philanthropist). In the last fifty years, the Institute has paved the way for many Portuguese scientists through its PhD programmes, fellowships and diverse educational initiatives.

The weak point of the country's research infrastructure is an immature system that does not secure long-term stability for individual researchers. Outside academia, Portugal has one of the lowest levels of employment of PhD holders in Europe. Also, the intense public sector bureaucracy makes it difficult to put flexible funding schemes in place. "Providing solid, sustainable careers for the large pool of highly qualified graduate and postdoctoral researchers is key in the years to come," Miguel Seabra says.

Bruno Silva-Santos remains optimistic about science in his home country. Judged by the multinational character of his team, which consists of 14 young scientists from Sweden, France, Germany and other countries, Portugal still remains a destination of choice for predoctoral and postdoctoral researchers.



The building of the Champalimaud Research Centre was designed by the US architect Charles Correa

Congratulations

to the following EMBO Members

EMBO Members who joined the ranks of the Royal Society in the UK and the US National Academy of Sciences this year:

New Royal Society Fellows and Foreign Members

- Judith Patricia Armitage
- Michael Webster Bevan
- William Charles Earnshaw
- Edith Heard
- Paul M. Sharp
- Brigitta Stockinger
- Jean-Paul Vincent
- Andrew Wilkie
- Margaret Buckingham
Foreign Member
- Randy Schekman
Foreign Member

New Foreign Associates of the National Academy of Sciences

- Kari Alitalo
- Christopher M. Dobson
- Michel Georges
- Michael S. Neuberger
- Robin A. Weiss

Upcoming deadlines

EMBO Courses & Workshops
1 August

**Late abstract submission for
The EMBO Meeting 2013**
8 August 2013

EMBO Long-Term Fellowships
Mid-August

EMBO Keynote Lectures
1 September

ESF | EMBO Symposia
1 October

**Deadline for nominations 2014
Women in Science Award**
15 October 2012

Next issue

EMBOencounters

The next *EMBOencounters* issue – **Autumn 2013** – will be dispatched in **October 2013**.

Please send your suggestions, contributions and news, to communications@embo.org by **16 September 2013**.

EMBO Members

elected in 2013

52 life scientists elected to EMBO membership

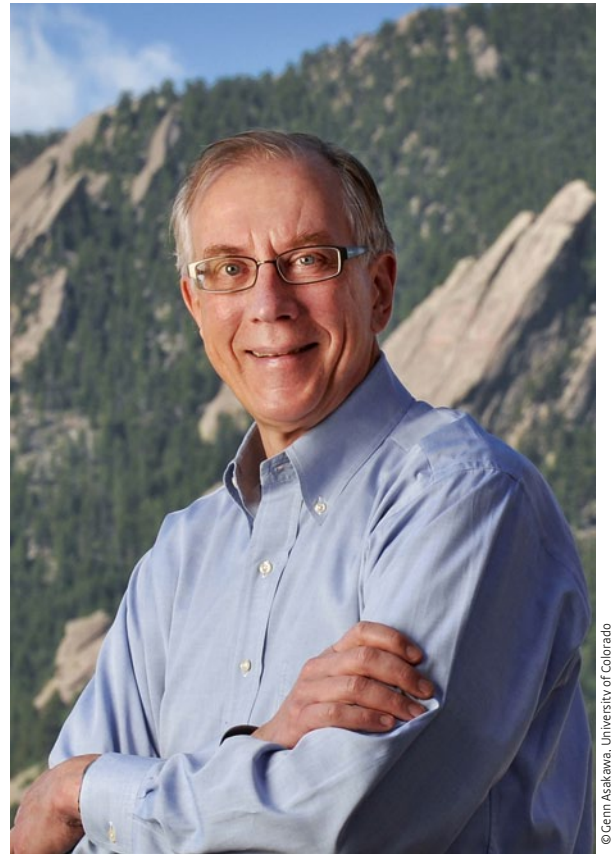
Fifty-two outstanding researchers in the life sciences were elected to EMBO membership last May. Forty-three of the researchers reside in Europe and neighboring countries and are accompanied by the election of nine Associate Members from Canada, China, India, Japan and the United States. The most recent scientists to join the EMBO membership come from 15 different countries and include 16 female scientists.

EMBO MEMBERS

Asifa Akhtar DE Max Planck Institute of Immunobiology and Epigenetics, Freiburg	Piet Gros NL Utrecht University	Lars Steinmetz DE European Molecular Biology Laboratory (EMBL), Heidelberg
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Herwig Baier DE Max Planck Institute of Neurobiology, Munich	Anne Houdusse FR UMR 144, CNRS, Institut Curie, Paris	Anu Suomalainen-Wartiavaara FI Biomedicum, University of Helsinki
Buzz Baum UK MRC Laboratory for Molecular Cell Biology, London	Andrew Jackson UK MRC Human Genetics Unit, Edinburgh	Shahragim Tajbakhsh FR Institut Pasteur, Paris
Anne Bertolotti UK MRC Laboratory of Molecular Biology, Cambridge	Roland Lill DE Institute of Cytobiology, University of Marburg	Nicholas Talbot UK University of Exeter
Michael Boutros DE German Cancer Research Center (DKFZ) and University of Heidelberg	Kaspar Locher CH Swiss Federal Institute of Technology (ETH), Zurich	Kostas Tokatlidis UK Institute of Molecular, Cell and Systems Biology, Glasgow <i>and</i> GR IMBB-FORTH, Heraklion
Frank Bradke DE German Center for Neurodegenerative Diseases (DZNE), Bonn	Nicholas Luscombe UK Cancer Research UK London Research Institute <i>and</i> University College London	John van der Oost NL Wageningen University
Elena Cattaneo IT University of Milan	Paloma Más ES Centre for Research in Agricultural Genomics (CRAG), Barcelona	Wolfgang Zachariae DE Max Planck Institute of Biochemistry, Martinsried
Christoph Dehio CH Biozentrum, University of Basel	Matthias Merkenschlager UK MRC Clinical Sciences Centre, London	EMBO ASSOCIATE MEMBERS
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Marileen Dogterom NL FOM Institute AMOLF, Amsterdam	Gioacchino Natoli IT IEO – European Institute of Oncology, Milan	Eugene V. Koonin US National Center for Biotechnology Information (NCBI), Bethesda
G�rard Eberl FR Institut Pasteur, Paris	Ketan Patel UK MRC Laboratory of Molecular Biology and University of Cambridge	Jiangyi Li CN Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, <i>and</i> Chinese Academy of Agricultural Sciences, Beijing
Anne Eichmann FR Center for Interdisciplinary Research in Biology, Coll�ge de France, Paris <i>and</i> US Yale School of Medicine, New Haven	Fiona Powrie UK Nuffield Department of Clinical Medicine, University of Oxford	Satyajit (Jitu) Mayor IN National Centre for Biological Sciences, Bangalore
Isabel Fari�as ES University of Valencia	Rosario Rizzuto IT University of Padova	Ruslan M. Medzhitov US Yale School of Medicine, New Haven <i>and</i> Howard Hughes Medical Institute
Deborah Fass IL Weizmann Institute of Science, Rehovot	Iris Salecker UK MRC National Institute for Medical Research (NIMR), London	Andre Nussenzweig US Center for Cancer Research, National Cancer Institute, Bethesda
Eileen Furlong DE European Molecular Biology Laboratory (EMBL), Heidelberg	Peter Scheiffele CH Biozentrum, University of Basel	Yoshinori Ohsumi JP Frontier Research Center, Tokyo Institute of Technology, Yokohama
Roger Goody DE Max Planck Institute of Molecular Physiology, Dortmund	Petra Schwillle DE Max Planck Institute of Biochemistry, Martinsried	Yigong Shi CN School of Life Sciences, Tsinghua University, Beijing
	Peter �ebo CZ Institute of Microbiology of the Academy of Sciences of the Czech Republic (ASCR), Prague	Nahum Sonenberg CA McGill University, Montreal

Productive collisions

TOM CECH is Director of the University of Colorado BioFrontiers Institute in the United States. In 1989, he and Sidney Altman were awarded the Nobel Prize in Chemistry for the discovery of the catalytic properties of RNA molecules. Cech was President of the Howard Hughes Medical Institute from 2000–2009. Here he discusses science in Europe and activities closer to home in the United States.



©Gemm Asakawa, University of Colorado

Tom Cech

You became an EMBO Associate Member in 1992. What does an Associate Member do?

Our role is to provide advice on the activities of the organization, encourage cooperation, and promote the value of the life sciences across borders. Because EMBO Associate Members reside outside of Europe, our interactions with European scientists encounter some barriers of distance, culture and language; but these barriers are now much lower with electronic communication.

What have been your most recent contacts with science in Europe?

I like to visit in person as much as I can. In May I gave talks about RNA chemistry and biology at the Institute of Organic Chemistry and Biochemistry in Prague, the Central European Institute of Technology in Brno, and the RNA Meeting in Pozna, Poland. I also recently gave a keynote lecture on “The Future of RiboScience” at the annual RNA Society Meeting in Davos, Switzerland. The main focus was about the importance of interdisciplinary approaches in RNA research and in training students.

Productive collisions are important. I recently had a visit from Doug Hanahan, Head of the Swiss Institute for Experimental Cancer Research at the EPFL in Lausanne. Doug reminded me of how the Swiss Institute for Bioinformatics embeds bioinformaticians in multiple labs throughout Switzerland. Similar things are happening here at BioFrontiers and around the United States, but they are not as organized as at the SIB. It’s so powerful when computational scientists understand the biology rather than just the coding.

Also, my BioFrontiers colleague Amy Palmer, who is a chemist and biologist, is on sabbatical with EMBO Member Pascale Cossart at the Institut Pasteur in Paris. They are examining how the *Listeria* pathogen establishes infection by manipulating host-cell biology.

EMBO will celebrate its 50-year anniversary in 2014. If there were one thing that could be done to improve the life sciences in Europe what would be your recommendation?

I think it is important to provide more opportunities for younger scientists to be independent group leaders. Obviously this works well at the European Molecular Biology Laboratory, but the opportunities throughout Europe are more mixed.

What strategy are you adopting at the University of Colorado BioFrontiers Institute?

Our approach in Boulder is to hire faculty who are already trained in two fields, for example computer science and biology, or physics and biology; they become the nodes in a collaborative network. Next, we train students in the same interdisciplinary way. Finally, we have strong interactions with industry – biotech and pharma – at multiple levels, including exposing our students to speakers who can explain what it’s like to work in industry.

Recent years have seen considerable focus on and funding of transdisciplinary research. Do you see any big successes from this approach to the life sciences?

There have been two huge successes. Bridging computer science with biology has allowed scientists to do experiments genome-wide or even proteome-wide instead of looking at one gene or RNA or protein at a time. It’s also enabled metagenomics and new revelations about the microbiome. Bridging physics with biology has been equally transformative for biologic imaging, for example super-resolution microscopy and single-molecule biochemistry.

Your Institute is now two years old. What are the challenges you are facing?

There are no barriers to research collaborations between, say, an engineer and a biologist, but as soon as you try to do something programmatic you find that the disciplines are quite entrenched. For example, American universities are all organized around departments – Department of Physics, Department of Chemistry, Department of Biology, Department of Bioengineering – and they have their own rules and their own culture that inhibit trans-departmental programs. So we’re negotiating with the individual departments all the time. I’m interested in knowing whether European universities have solved this problem.

For 10 years you were President of the Howard Hughes Medical Institute? What has it been like personally to make the transition back to almost full-time research?

I very much enjoyed my time in the Washington, D.C. area, working with a great staff at HHMI and organizing scientific programs nationally and internationally. But I missed teaching and the daily interactions with my research group, so I’m equally excited to be back “in the trenches.”

What is the current focus of research in your lab?

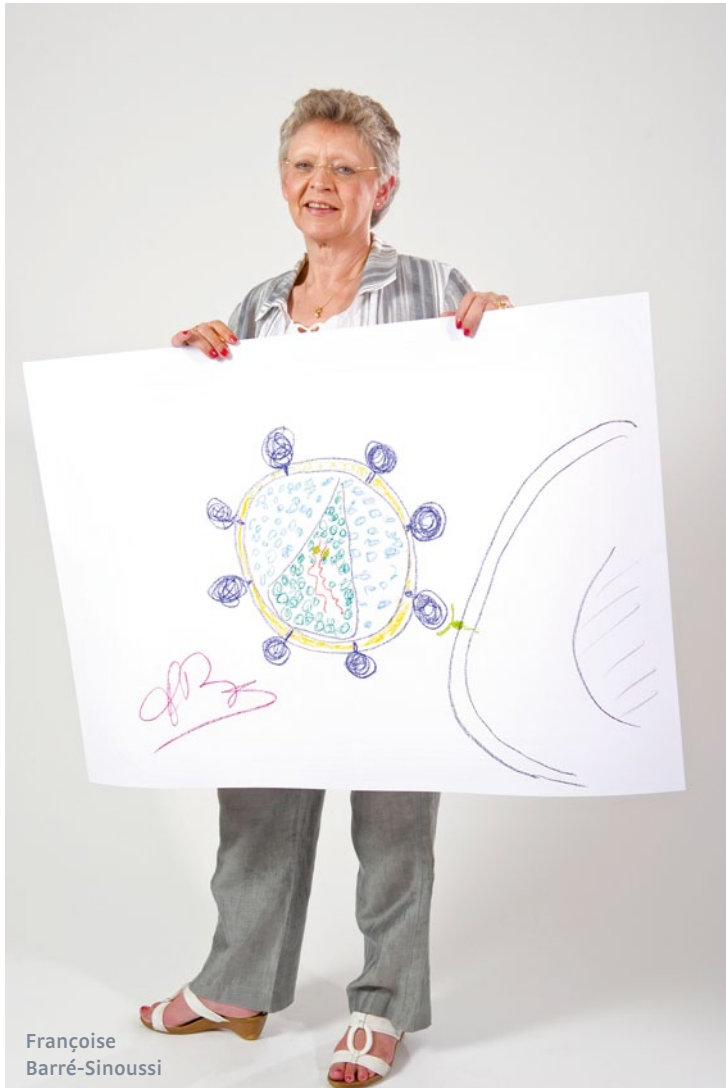
About half the group works on telomerase, looking in detail at how telomerase operates at the molecular level and the impact of the enzyme on cancer. The other half works on proteins that bind long non-coding RNAs and regulate transcription.

How “European” is your lab?

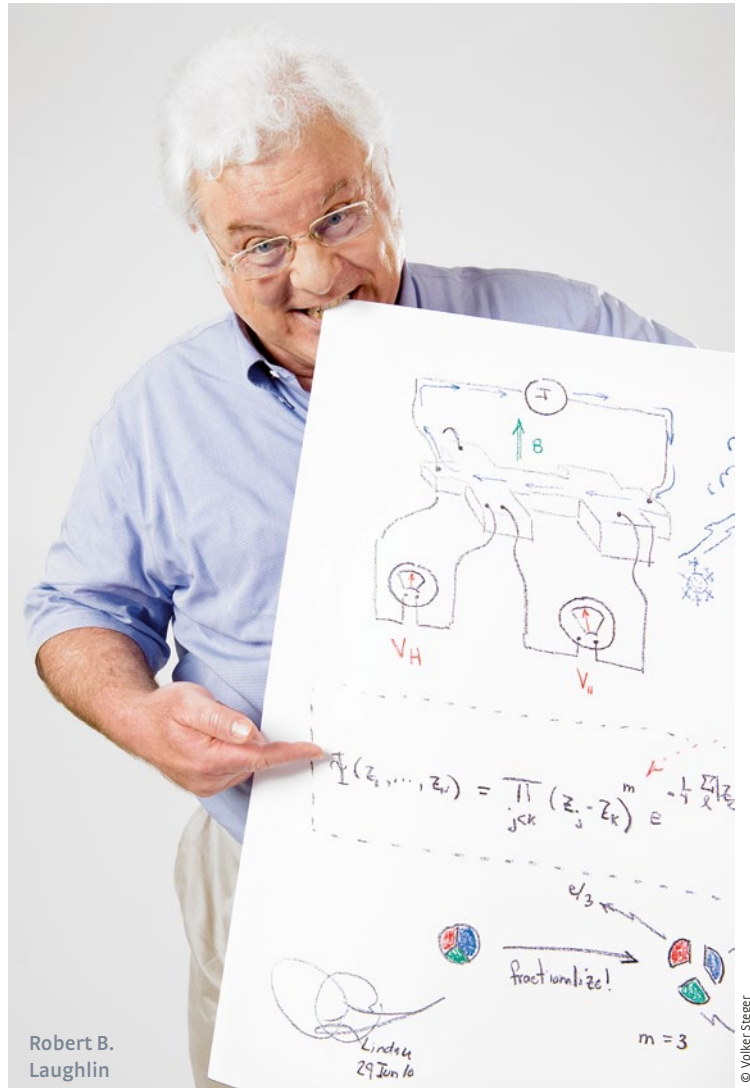
In addition to international graduate students and postdoctoral researchers, we have two undergraduate exchange students from Regensburg University in Germany working on telomerase and long non-coding RNA research. We also have a visiting scholar from the Central European Institute of Technology in Brno, Czech Republic, who arrived only recently and already has some interesting results after his first month in the lab. Non-scientists are often surprised by the international nature of our science, but of course it’s quite common and incredibly healthy.

For more information on the BioFrontiers Institute visit biofrontiers.colorado.edu or follow the institute on Twitter @[biofrontiers](https://twitter.com/biofrontiers).

Sketches of science – art exhibition by Nobel Laureates



Françoise
Barré-Sinoussi



Robert B.
Laughlin

Nobel Prize Winners are used to solving tricky questions. The task that 56 of them were confronted with at the 2012 Nobel Laureate Meeting in Lindau, Germany, was also not trivial. Each laureate was asked to draw an ad-hoc sketch of their scientific discovery by using only wax crayons.

Once completed, a portrait was taken of the Laureate holding his or her drawing. The large-scale photographs are now part of a travelling exhibition that was first shown in the Nobel Museum in Stockholm in June 2012 and will finish in Singapore next year with four stops en route.

The idea came from the science photographer Volker Steger. He invited selected Nobelists to his studio without warning them about the purpose of the visit. Each session began with Steger laying a blank sheet of paper and a box of crayons in front of each Nobelists asking them to illustrate their great finding. "All of the Laureates I have photographed were very surprised by my unusual request, because I had not told them about it beforehand. The idea was to capture something spontaneous. The sketches actually proved to be as multifaceted as the Laureates who created them." Volker Steger explains.

The ad-hoc artists had very little time to polish their pictures or protect their reputations. "No aides or colleagues were on hand to help, no slides, no PowerPoint," wrote project participant and EMBO Member Tim Hunt in the foreword of the exhibition book.

Several EMBO Members contributed to the show. Elizabeth Blackburn's vision of how chromosomes are protected by telomeres and telomerase is colorful, expressive and detailed. It even displays sound effects and emotions. Tim Hunt came up with a simple yet precise sketch of the cell cycle, for which he shared the Nobel Prize in 2001. Françoise Barré-Sinoussi who shared the 2008 Nobel Prize for the discovery of HIV, drew a colourful AIDS virus. And the Israeli chemist Aaron Ciechanover is pictured while pouring himself a glass of water to illustrate the ever-changing nature of the cyclical process of protein degradation.

The Laureates photographed for the project come from all three disciplines of physics, chemistry, and medicine or physiology. The majority of them have been awarded their prizes in recent decades, although some Nobelists from the 1960s and 1970s are also featured. At the exhibition, the photo portraits and a selection of the original drawings are complemented by interviews, video footage, and digital presentations related to the scientists and their discoveries.

Traffic lights, footballs, and a frying pan. Some of the analogies are rather exotic, others obvious. Yet all participants in the project seem to have one thing in common: enthusiasm for science.

The catalogue of the exhibition is available at:
http://issuu.com/InIm/docs/sketches_of_science_artbook?e=6675873/2636375

The limits of privacy

BARTHA KNOPPERS is a professor of law from McGill University in Montreal, Canada, and an internationally recognized expert on the ethical aspects of genetics and biotechnology. She is one of the speakers at the upcoming Science & Society Conference on Public and Private Health: Genomics, Medicine and Society which will be held in Heidelberg from 7–8 November and her talk will focus on *Large data collections: protecting research participants while allowing useful research*. In an interview with *EMBOencounters*, she talks about the privacy of health information in the digital age.



© McGill University

In which research areas are large genomic databases particularly helpful?

Rare diseases are one example. The rare diseases community is very active when it comes to sharing data, pictures and samples. In their view, data sharing should not be unduly hampered with legislation and overly stringent ethics committees. If only 300 people around the world have a certain disease, it becomes imperative for them to be able to share data and samples.

With sequencing becoming increasingly popular and its costs falling are people more concerned about the risks of sharing data?

While genetic data is sensitive information, I am very much in the school of thought that we should get used to the idea of sharing under proper governance as a starting point, albeit with privacy protections where desired. Today, the reverse is true. Your privacy comes first and then you have to struggle around it. I think the privacy aspect is exaggerated. The more we learn about the role of genetics the more we understand that this is just a factor among other factors such as the environment and lifestyle that influence health and disease.

What are the most important privacy issues in the digital age in your opinion?

One of the driving forces in the privacy debate is “big data”. It makes it possible for commercial entities or indeed anyone, through various sources of totally unconnected data, to come up with a composite picture of an individual who was presumed to be unidentifiable. There are definite privacy issues here.

The other phenomenon is that of individuals who voluntarily make their DNA and other health information available online. They are not concerned that others can see their genome or who their ancestors or their family members are. There is an emerging culture of saying ‘I do not want to be private and have different walls imposed on me.’ This reflects a change in privacy attitudes that is promoted and sustained by social media.

Large research projects using whole-genome sequencing (WGS) are happening at the same time as the emergence of the electronic medical record. Should the patient be concerned about genetic privacy?

The medical record and research record have rarely been connected to date. But with WGS, the barriers between the two domains are beginning to converge. Again, the driving force is technology. By using whole-genome sequencing to find out more about a specific disease you also get information on so-called incidental findings that may be clinically important but may also be in your medical record.

The recommendations on the return of incidental findings to patients by the American College of Medical Genetics have caused a lot of controversy recently. They require that all laboratories conducting DNA sequencing to identify disease-associated genes also test for mutations in 57 genes. Laboratories have to return the 57 results as a condition of the test – whether the patient likes it or not. This proposal has caused an absolute uproar as many think that it is taking away the patient’s right not to know as well as the clinical judgment of the physician who would typically receive such results and put them in the medical record.

What is your opinion on the proposed European directive on privacy?

The proposed regulation in Europe says that you need a “specific, explicit and informed consent” for every use of data and samples. Yet, in certain types of scientific research obtaining such consent is not feasible. As a result, many European researchers fear that this regulation could hinder or prevent medical discoveries in future. The rare diseases community is very upset about this proposed amendment. They want their samples and data to be used to the maximum for

health research and the development of eventual therapies.

What topics and lectures at the upcoming conferences are you particularly looking forward to?

I am looking forward to hearing more about the international aspects. Science is becoming increasingly collaborative, so what does this mean for the country-by-country approaches to privacy? This topic seems to be stirring up a lot of public interest nowadays – in many different ways.

EMBO EMBL

Public and Private Health

Genomics, Medicine and Society

7–8 November 2013
EMBL ATC, Heidelberg, Germany

events.embo.org
/science-society-conference



The famous 2-km-long and 100-meter-wide Troll Fjord was one of the highlights on the boat trip from Bergen to Tromsø.

© Han-Ming Shen

EMBO conference takes to the sea

Almost 180 participants embarked on MS Trollfjord last May to learn the latest on molecular mechanisms of autophagy. The focus was on the regulation of autophagosome biogenesis and the role of selective types of autophagy in health and disease.

The organisers of the EMBO conference *Autophagy: Molecular mechanism, physiology and pathology* that took place in Norway in early May, selected a rather unusual venue for participants. The meeting took place on a cruise ship. Around 180 scientists attended the event organized by Anne Simonsen from the University of Oslo and EMBO Member Sharon Tooze from Cancer Research UK. The conference brought together experts from different disciplines and provided ample opportunity for discussions and interdisciplinary exchange.

MS Trollfjord left Bergen on the 5 May and stopped at 22 ports en route to Tromsø. The

four-day sea trip was packed with lectures, presentations and discussions while the cruiser floated along the beautiful Norwegian fjords and travelled up to the Arctic Circle.

The focus of the conference was the molecular mechanisms underlying the regulation, execution and the role of selective types of autophagy in health and disease.

Per O. Seglen from the Institute for Cancer Research in Oslo started the meeting with what he called an “autophagobiography.” He presented a comprehensive history of the field starting from its early days when morphological observations were the main mode of examination, through the

biochemical era, and up to the present day of autophagy research.

Beth Levine from the University of Texas in Dallas, United States, talked about how a receptor tyrosine kinase, commonly mutated in human cancer, directly regulates the core autophagy machinery, which may contribute to tumor progression and resistance to chemotherapy.

Felix Randow from the MRC Laboratory of Molecular Biology in Cambridge focused on the role of autophagy in host-pathogen interactions. Although cells deploy autophagy as a protection to infection, cytosol-dwelling bacteria have learned to avoid elimination via this mechanism. Certain viruses even misappropriate autophagy for their own means to ensure efficient propagation.

Ivan Dikic from Goethe University of Medicine in Frankfurt, Germany, and the Frankfurt Institute for Molecular Life Sciences presented results of a phage display screen for modulators of autophagy, which identified novel inhibitors as well as sensors of autophagy.

“All our speakers are leaders in the field of autophagy. They gave great talks and shared a lot of unpublished data,” concluded Anne Simonsen. “Also, the ship was a great venue. As there was no WiFi in the cabins, people would mostly stay in the common areas and socialize.”



© Han-Ming Shen

The conference cruiser MS Trollfjord is equipped with an auditorium for 200 guests

EMBO Young Investigators meet in Heidelberg

More than fifty group leaders gathered in Heidelberg for the annual EMBO Young Investigator get-together in early May. Each scientist gave a short talk about his or her latest research findings at the three-day event.

Topics included recreating the autocatalytic reactions that resemble the steps of glycolysis found in the early world ocean (Markus Ralser, University of Cambridge, United Kingdom), the exploration of the magnetosome in pigeons (David Keays, Research

Institute of Molecular Pathology, Austria), and transcriptome analysis in single cells (Rickard Sandberg, Karolinska Institute, Sweden). Fyodor Kondrashov from El Centro de Regulación Genómica (CRG, Spain) invited his fellow Young Investigators to join him in teaching science to highly talented high school students in his hometown of Pushchino near Moscow.

The scientific talks were interspersed with feedback sessions on the activities of the programme, a discussion of the publication policies of EMBO and a presentation about the EMBL core facilities.

At the meeting, EMBO Installation Grantees met the chair of the Installation Grant board, Claudio Sunkel from the University of Porto, to

discuss the Young Investigator Programme and define the feedback that would be shared with the representatives of their local governments.

“This meeting was full of high-calibre science with a great variety of topics. It encouraged me to think outside my comfort zone and I have started a collaboration with Petr Svoboda,” concluded Bruno Reversade from A*Star. Reversade is the first member of the programme who is not located in Europe but from Singapore, an EMBO co-operation partner country. The meeting was followed by the sectoral meeting on evolutionary biology.

To watch video interviews from the meeting visit <http://tinyurl.com/ptr8t82>

SPOTLIGHT ON
EMBO COURSES & WORKSHOPS

Funding life science meetings in Europe

The EMBO Courses & Workshops Programme has been an integral part of European life sciences for almost half a century. Together with the Fellowships Programme, it was one of the inaugural activities pioneered by the first EMBO director Raymond Appleyard in 1965. Today, with more than 80 events attended by 9,000 participants every year, EMBO offers the largest life science event-funding programme in Europe.

The core part of the programme is the funding of conference series, workshops, symposia, lecture and practical courses, most of which are held in the 27 EMBC member states in Europe and Israel. Some of the meetings have a long-standing tradition: The conference series on “The molecular and developmental biology of *Drosophila*” has been supported by EMBO for over thirty years and remains an attractive forum for scientists involved in *Drosophila* research. While the conference series focus on exploring key aspects of life sciences, the practical courses are designed for scientists to learn new methods and emerging techniques. The workshops provide researchers from different fields with an opportunity to discuss common themes. “Our programme is renowned for funding first-rate meetings and providing scientists at all career stages with networking and training opportunities,” says programme manager Anne-Marie Glynn.

Anne-Marie works with three staff who administer all the applications and assist organizers and participants. Team member Sharon Witzke explains the selection process: “Event organizers apply through our application system, we then send them to the committee for evaluation.” The committee, which consists of eleven EMBO Members, meets twice a year to make the final selection. 50 percent of submitted applications receive EMBO support. Important selection criteria are – next to high scientific quality – a varied list of speakers that includes younger as well as established scientists, gender balance and the international character of the proposed event.

Yet financial support is just one part of the package. Successful applicants are also offered



The EMBO Courses & Workshops Programme team (from left to right): Aditya Kusuma Jati, Bronagh Carey, Sharon Witzke and Anne-Marie Glynn.

“The EMBO Courses & Workshops Programme is renowned for funding first-rate meetings and providing scientists at all career stages with networking and training opportunities.”

a website, an event poster and assistance with the registration system. Bronagh Carey and Aditya Kusuma Jati are responsible for the online services. Both design more than eighty websites and posters per year. Aditya also lends his social media expertise to the meeting hosts. His colleague Bronagh appreciates the creative side of drafting meeting posters. “It is rewarding to see our posters on other institutes’ pin-boards,” she says. Bronagh, who is the latest addition to the team, had administered the predoctoral programme at the University College Dublin before joining EMBO. “What struck me the most when I first came here was the multinational character of the organization,” she says.

In fact, the team is the most cosmopolitan at EMBO, with four people representing three continents. It matches the increasingly global

orientation of the historically rooted programme, which in the meantime also hosts the EMBO Global Activities, the EMBO | EMBL Symposia, EMBO Laboratory Management Courses and other projects.

Over the last three years, the organization has significantly extended its spectrum of operation, also geographically. Recent agreements with the governments of South Africa and Singapore, and with the National Science Council of Taiwan stimulate international exchange and foster collaborative projects. Taking care of a meeting located in Cape Town or Singapore is not a rarity any more. Yet asked about the most exotic setting of an EMBO-supported scientific event the team unanimously mentions the conference series held on a boat cruising along the Norwegian coast (*see also article on page 8*).

Practical Courses

Structure, dynamics and function of biomacromolecules by solution NMR
CH-Basel, 20–27 July 2013

Two-photon imaging of brain circuit function
CH-Zurich, 1–7 September 2013

Image processing for cryo-electron microscopy
UK-London, 3–13 September 2013

Imaging of neural development in zebrafish
DE-Karlsruhe, 8–15 September 2013

Current methods in cell biology
DE-Heidelberg, 26 September–4 October 2013

Computational biology: From genomes to cells and systems
TR-Nevşehir, 29 September–4 October 2013

Modern biophysical methods for protein–ligand interactions
FI-Oulu, 21–25 October 2013

Analysis of high-throughput sequencing data
UK-Hinxton, 21–26 October 2013

Bioinformatics and statistics for large-scale data
CN-Shenzhen, 17–23 November 2013

Metabolics bioinformatics for life scientists
UK-Cambridge, 10–14 March 2014

Computational molecular evolution
GR-Heraklion, 5–14 May 2014

Bioinformatics and genomes analyses
GR-Athens, 5–17 May 2014

3D developmental imaging
PT-Oeiras, 4–12 July 2014

Ubiquitin and related modifiers
IT-Alghero, 6–13 September 2014

COURSES | WORKSHOPS | SYMPOSIA

ORGANIZERS Apply now for 2014 funding

DEADLINE 1 August 2013

For further information, please visit
EMBO Courses & Workshops
www.embo.org/funding-awards/courses-workshops

For an up-to-date list of
EMBO events please go to
events.embo.org

Workshops

Green viruses, from gene to landscape
FR-Hyères-les-Palmiers, 7–11 September 2013

Drosophila cell division cycle
UK-Totnes (Exeter), 12–16 September 2013

AAA+ proteins: From mechanisms and disease to targets
DE-Neuss, 15–19 September 2013

Molecular mechanisms of muscle growth and wasting in health and disease
CH-Ascona, 15–20 September 2013

RNA 3' ends: Mechanism and biological function in eukaryotic genomes
UK-Oxford, 25–29 September 2013

Mitochondria, apoptosis and cancer 2013 (MAC 2013)
SE-Stockholm, 10–12 October 2013

Semaphorin function and mechanism of action
FR-Cernay-la-Ville, 29–31 October 2013

Cell–cell fusion
IL-Kibbutz Ein Gedi, 3–7 November 2013

Complex systems in immunology
SG-Singapore, 2–4 December 2013

Protein and lipid function in secretion and endocytosis
AT-Goldegg am See, 14–19 January 2014

Signalling to and from endomembranes
DE-Allensbach-Hegne, 15–19 March 2014

Mechanisms of neuronal remodelling
IL-Ein Bokek, 22–26 March 2014

Stalked Alphaproteobacteria and relatives: From genes to structure
DE-Ebsdorfergrund, 30 March–3 April 2014

Histone variants
FR-Ilkirch, 2–4 June 2014

Intercellular communication in plant development and disease
FR-Bischoffsheim, 24–29 August 2014

Conferences

Helicases and nucleic acid translocases: Structure, mechanism, function
UK-Cambridge, 4–8 August 2013

Nuclear receptors: Linking molecules, genomes & physiology
IT-Sorrento, 6–10 September 2013

Protein synthesis and translational control
DE-Heidelberg, 8–12 September 2013

Aquatic microbial ecology (SAME13)
IT-Stresa, 8–13 September 2013

Meiosis
DE-Radebeul, 14–19 September 2013

Membrane dynamics in endocytosis: Systems dynamics in the endocytic pathway
CH-Villars-sur-Ollon, 29 September–4 October 2013

Continued in next column...

Conferences (continued)

Ubiquitin and ubiquitin-like proteins: From structure to function
IT-Riva del Garda, 1–5 October 2013

Nuclear structure and dynamics
FR-L'Isle-sur-la-Sorgue, 2–6 October 2013

The DNA damage response in cell physiology and disease
GR-Cape Sounio, 7–11 October 2013

Comparative genomics of eukaryotic microorganisms: Complexity patterns in eukaryotic genomes
ES-Sant Feliu de Guixols, 19–24 October 2013

Visualizing biological data (VIZBI 2014)
DE-Heidelberg, 4–7 March 2014

Molecular biology of muscle development and regeneration
IT-Acaya-Lecce, 14–18 May 2014

Lymphocyte signalling
IT-Bertinoro, 17–21 May 2014

Cellular signalling and cancer therapy
HR-Cavtat, 23–27 May 2014

Microtubules: Structure, regulation and functions
DE-Heidelberg, 28–31 May 2014

Enzyme mechanisms by biological systems
UK-Manchester, 1–4 June 2014

Gene transcription in yeast: From regulatory networks to mechanisms
ES-Sant Feliu de Guixols, 14–19 June 2014

The molecular and developmental biology of *Drosophila*
GR-Kolymbari, 22–28 June 2014

Microbiology after the genomics revolution (Genomes 2014)
FR-Paris, 24–27 June 2014

Chemical biology
DE-Heidelberg, 20–23 August 2014

The molecular and cellular basis of regeneration and tissue repair
ES-Sant Feliu de Guixols, 6–10 September 2014

Centrosomes and spindle pole bodies
PT-Lisbon, 30 September–3 October 2014

Experimental approaches to evolution and ecology using yeast
DE-Heidelberg, 12–15 October 2014

Ubiquitin & ubiquitin-like proteins: At the crossroads from chromatin to protein
AR-Buenos Aires, 19–24 October 2014

Other EMBO events

Lab Management Courses
DE-Leimen, Various dates

The EMBO Meeting 2013
NL-Amsterdam, 21–24 September

EMBO Members Meeting
DE-Heidelberg, 23–25 October

14th EMBO|EMBL Science and Society Conference Public and private health: Genomics, medicine and society
DE-Heidelberg, 7–8 November

ESF | EMBO Symposia

B cells: From bedside to bench and back again
PL-Pułtusk, 2–7 September

Integrated insect immunology: From basic biology to environmental applications
PL-Pułtusk, 23–28 September

ESF | EMBO SYMPOSIA ORGANIZERS Apply now for 2015 funding DEADLINE 1 October 2013

EMBO | FEBS Lecture Courses

Host–microbe interactions
GR-Spetses, 30 August–7 September

Protein interactions, assemblies and human disease
GR-Spetses, 16–26 September

EMBO | EMBL Symposia

Seeing is believing: Imaging the processes of life
DE-Heidelberg, 3–6 October

The non-coding genome
DE-Heidelberg, 9–12 October

New approaches and concepts in microbiology
DE-Heidelberg, 14–16 October

Tumour microenvironment and signalling
DE-Heidelberg, 7–10 May 2014

Molecular machines: Lessons from integrating structure, biophysics and chemistry
DE-Heidelberg, 18–21 May 2014

Epithelial biology
DE-Heidelberg, 27–30 August 2014

The complex life of mRNA
DE-Heidelberg, 5–8 October 2014

Frontiers in metabolism: From molecular physiology to systems medicine
DE-Heidelberg, 17–20 November 2014

EMBO Global Activities Lecture Courses

Structural and biophysical methods for biological macromolecules in solution
BR-São Paulo, 19–26 January 2014

Biology of bacterial non-coding RNAs
AR-Bernal, 24 February–1 March 2014

Biochemistry and molecular biology bench to bedside approaches
BR-Cuiabá/Poconé, 27 October–7 November 2014

KEYNOTE LECTURES

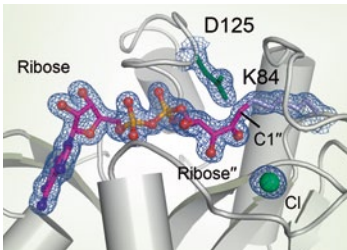
EMBO funds keynote lectures given by EMBO Members at major international scientific meetings in 2014 and 2015

DEADLINES
1 September 2013
1 December 2013

RESEARCH ARTICLE

Hereditary neurodegeneration linked to ADP-ribose modification

Attaching chains of the small molecule ADP-ribose to proteins is important for a cell's survival and the repair of DNA damage, making this process a promising target for the development of new cancer drugs. Researchers have identified a much sought after enzyme that removes ADP-ribose modifications from proteins by studying a genetic mutation that causes neurodegenerative disease in humans. The researchers' findings suggest that not only addition but also removal of ADP-ribose from proteins is essential for normal cell function.



EMBO Young Investigator Ivan Ahel, a group leader at the Paterson Institute for Cancer Research at the University of Manchester, has been studying the underlying molecular processes, including an enzyme that shortens such chains piece by piece. "Our approach has been to combine clinical, biochemical and structural studies to see if we could pin point this enzyme activity in humans," Ahel commented. The researchers note that further work is needed to investigate the exact cellular processes where the enzyme exerts its functions, and to understand why mutation of the gene for this enzyme causes neurodegenerative disease.

Deficiency of terminal ADP-ribose protein glycohydrolase TARG1/C6orf130 in neurodegenerative disease

Reza Sharifi, Rosa Morra, C. Denise Appel, Michael Tallis, Barry Chioza, Gytis Jankevicius, Michael A. Simpson, Ivan Matic, Ege Ozkan, Barbara Golia, Matthew J. Schellenberg, Ria Weston, Jason G. Williams, Marianna N. Rossi, Hamid Galehdari, Juno Krahn, Alexander Wan, Richard C. Trembath, Andrew H. Crosby, Dragana Ahel, Ron Hay, Andreas G. Ladurner, Gyula Timinszky, R. Scott Williams, Ivan Ahel

The EMBO Journal

Read the paper:
doi: 10.1038/emboj.2013.51

ARTICLE

New citation indicators needed to measure research performance

How do you compare the impact of a researcher in chemistry or physics with a molecular biologist who may be working on similar projects? Two experts support the use of citation indicators that are based on percentiles, a statistical parameter that allows for comparisons with a carefully defined group of reference data, to solve the challenge. Journal impact factors and *h*-index alone do not make the grade.



"We argue that new citation impact indicators are needed and that these indicators should allow the comparison of the observed impact for a given publication set with a reference set of similar publications," Lutz Bornmann, a sociologist of science at the Division for Science and Innovation Studies at the Max Planck Society in Munich, Germany, remarked. "This is a better way to make meaningful assessments of scientific work." He added: "Indicators must also take into account that the distribution of citations across papers is often skewed. The use of percentiles described in our paper provides a solution."

How good is research really? Measuring the citation impact of publications with percentiles increases correct assessments and fair comparisons
Lutz Bornmann, Werner Marx

EMBO reports

Read the paper:
doi: 10.1038/emboj.2013.9

ARTICLE

Corruption influences migration of skilled workers

Countries that have higher levels of corruption struggle to attract and retain skilled workers. Qualified workers are in demand in many countries around the world. They are internationally mobile and have the flexibility to take on new challenges. However, if the exodus of skilled workers exceeds the immigration rate of highly qualified individuals it may have a negative impact on the economic performance of a country.



"A positive 'balance of brains' is a crucial factor for the success of any country," remarked Mara Pasquamaría Squicciarini, from the LICOS Centre for Institutions and Economic Performance at the University of Leuven and one of the authors of the paper. "Our study confirms that the level of corruption in different countries directly impacts the availability of skilled workers and is an important decision factor for emigration and immigration by highly skilled professionals."

"Investment in education in corrupt countries benefits other countries if people emigrate to more attractive employment markets," commented Andrea Ariu from the Catholic University of Louvain la Neuve. "Government policy must focus not only on building an educated workforce but also on fighting corruption to create a fair labour market for all concerned."

The balance of brains: Corruption and migration
Andrea Ariu, Mara Pasquamaría Squicciarini

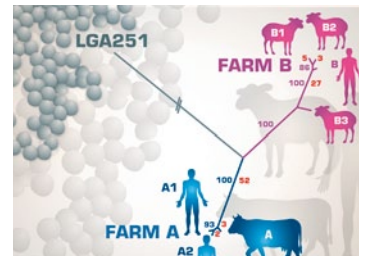
EMBO reports

Read the paper:
doi: 10.1038/emboj.2013.59

RESEARCH ARTICLE

Sequencing tracks animal-to-human transmission of bacterial pathogens

Researchers have used whole genome sequencing to reveal if drug-resistant bacteria are transmitted from animals to humans in two disease outbreaks that occurred on different farms in Denmark. The results confirm animal-to-human transmission of methicillin-resistant *Staphylococcus aureus* (MRSA), a disease-causing bacterium that carries the recently described *mecC* gene. The *mecC* gene is responsible for resistance to the penicillin-like antibiotic methicillin.

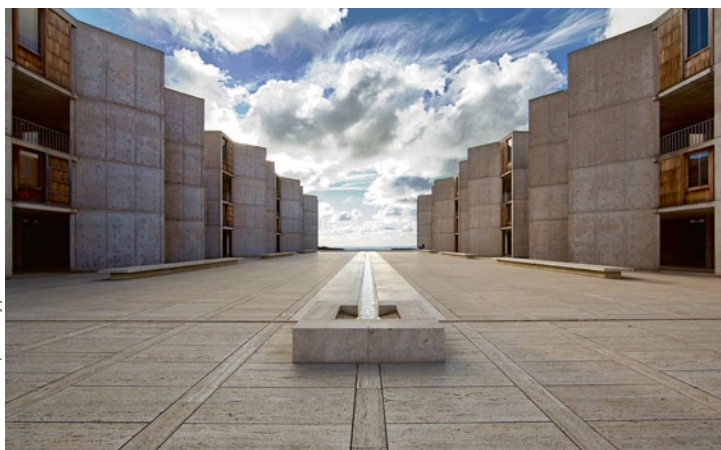


"We used whole genome sequencing to see if we could determine if the two disease outbreaks were caused by the same bacterium and to investigate if the pathogens were transmitted from animal to humans or the other way around," Mark Holmes, from the University of Cambridge remarked. "At first glance, it seems reasonable to expect the same pathogen to be the source of the two outbreaks at the two geographically close locations. By looking at the single differences in nucleotides or SNPs in the DNA sequences of each isolate, it became obvious that two different strains of bacteria were responsible for the two disease outbreaks. In one case, the results also clearly showed that the most likely direction of transmission was from animal to human."

Whole genome sequencing identifies zoonotic transmission of MRSA isolates with the novel *mecA* homologue *mecC*
Ewan M. Harrison, Gavin K. Paterson, Matthew T.G. Holden, Jesper Larsen, Marc Stegger, Anders Rhod Larsen, Andreas Petersen, Robert L. Skov, Judit Marta Christensen, Anne Bak Zeuthen, Ole Heltberg, Simon R. Harris, Ruth N. Zadoks, Julian Parkhill, Sharon J. Peacock, Mark A. Holmes

EMBO Molecular Medicine

Read the paper:
doi: 10.1002/emmm.201202413



New centre for genomic medicine at the Salk Institute

The Salk Institute for Biological Studies has received a \$42 million gift to establish the **HELMSLEY CENTER FOR GENOMIC MEDICINE (HCGM)**. The new centre will focus on understanding how genetic factors contribute to complex human diseases.

The \$42 million gift, from the Leona M. and Harry B. Helmsley Charitable Trust, is the largest one-time gift in the history of the Institute and will be used to support research to find new therapies for chronic diseases like cancer, diabetes and Alzheimer's disease.

"This remarkable gift reflects the strong partnership between Salk and the Helmsley Charitable Trust and their commitment that the Institute stay at the forefront of biomedical research," said William R. Brody, Salk president.

The Helmsley Center for Genomic Medicine (HCGM) will allow Salk researchers to use genomic data and new technologies to decipher

the molecular and genetic mechanisms that go awry in chronic disease.

EMBO Associate Members Inder Verma, Fred Gage and Ronald Evans will have roles in the centre which will be home to scientists who are leaders in a range of biomedical research fields, for example stem cell biology, endocrinology, cancer biology, metabolism, neurobiology, developmental biology, inflammation, and gene therapy. They will combine their efforts to understand how cellular pathways contribute to chronic diseases.

Researchers will also explore how genomic networks control stem cell development. This

will allow scientists to manipulate genes to make stem cells useful for studying disease and regenerative medicine. The centre will also investigate how disease alters the epigenome. In time this approach may explain why patients with similar genetic profiles respond differently to treatment.

More information on The Salk Institute for Biological Studies is available at www.salk.edu

3rd World Conference on Research Integrity

About 350 international participants, including speakers from EMBO, gathered in Montreal on 5–8 May to discuss the state of research practice and to propose and share solutions to promote research integrity.

As research collaborations become more international, it will be crucial for scientists to know the full scope of rules and guidance that they may be subject to, both in their home countries and the countries of collaborators. Furthermore, different scientific disciplines have different ways to implement rules and guidance. Participants at the 3rd World Conference on Research Integrity discussed the implications of these tensions, and particularly how to think about getting to common rules for countries with vastly different scientific cultures, a problem not only in Europe but worldwide. One outcome of the meeting will be the Montreal Statement, a list

of principles for researchers engaged in projects that work across borders.

The conference also addressed general issues in research integrity including trust, misconduct, the use of codes and standards, and ways to use emerging technologies. Many of these issues are of great interest to the EMBO community and EMBO was well represented at the meeting.

Michele Garfinkel, Manager of the EMBO Science Policy Programme, and Bernd Pulverer, Head of Scientific Publications at EMBO, reflected on the growing involvement of EMBO in discussions about responsible conduct of research in their invited talks. Garfinkel described EMBO's approach to research integrity as an organization with diverse characteristics: a publicly funded intergovernmental organization with an elected membership that functions as a funder and a publisher, and which also carries out its own policy research. Ensuring transparency and equal opportunities as well as avoiding conflicts of interest in the selection processes for awarding funding have always been key elements of the organization.

Bernd Pulverer talked about solutions adopted by the EMBO journals to prevent and detect problems in submitted papers, which can range from mistakes to research misconduct. He discussed the transparent review process of EMBO, which includes policies aimed at assuring fair peer review as well as policies to publish source data, the original data that underlie published graphs or figures in scientific papers. Pulverer's second

talk took place in one of the sessions at the meeting that looked at the relationships between journals and institutions. In particular, it was discussed under what circumstances it is appropriate for journals to resolve issues before publication and at what stage journals should defer to institutional investigations.

Other talks focused on the use of audits to oversee research laboratories and experimental data, how to ensure the independent replication of results, and ways to detect plagiarism.

EMBO is developing new policies aimed at encouraging grantees to follow basic principles set out, for example, by the Singapore Statement on Research Integrity. The Singapore Statement on Research Integrity originated from the 2nd World Congress on Research Integrity meeting. EMBO has also been involved in the development of an on-line course on research integrity that will be made available soon to EMBO's communities. EMBO Members, Young Investigators, and Fellows will be sent more details shortly.

Link to the Singapore Statement:
www.singaporestatement.org/statement.html

Link to draft Montreal Statement:
http://wc2013.org/Montreal_Statement_e.shtml

Link to EMBO transparent review process:
www.nature.com/emboj/about/process.html

Nordic partnership renewed and expanded

The **NORDIC EMBL PARTNERSHIP FOR MOLECULAR MEDICINE** was founded in 2007 to advance molecular medicine in Northern Europe. The partnership, which was first started by an agreement between the University of Oslo, Umeå University, University of Helsinki and the European Molecular Biology Laboratory, has now been renewed for a further 10 years and recently welcomed its latest partner, the Danish Research Institute of Translational Neuroscience (DANDRITE) at Aarhus University.



© Lars Kruse, AU Kommunikation, Aarhus University

Left to right at the launch ceremony of DANDRITE in Aarhus, 5 March, 2013:

Poul Nissen
DANDRITE

Thomas Wilhelmsson
Rector | University of Helsinki

Lena Gustafsson
Vice-chancellor | Umeå University

Iain Mattaj
Director General, EMBL

Lauritz B. Holm-Nielsen
Rector | Aarhus University

Ole Petter Ottersen
Rector | University of Oslo

Olli Kallioniemi
FIMM

Bernt Eric Uhlin
MIMS

Kjetil Taskén
NCMM

The Nordic EMBL Partnership for Molecular Medicine comprises around 350 scientists, including 40 junior and senior group leaders. Some of the goals of the partnership are to address the latest challenges in biomedicine, to help clinical researchers and industry to establish new collaborations, and improve access to scientific infrastructure, services and training opportunities.

“We have been working closely with our colleagues in the Nordic region, including Kjetil Taskén in Norway, and EMBO Members Olli Kallioniemi and Poul Nissen in Finland and Denmark, respectively,” Professor Bernt Eric Uhlin, EMBO member and director of the Swedish node of the partnership, said. “Our efforts have helped to secure funding from local and national research councils, private foundations and the universities that we belong to. The

many contributions of EMBL and this support have helped to give the network the momentum needed to promote molecular medicine research and to support young, talented scientists at the early stages of their careers.”

Like all collaborations, meetings and networking are essential for the success of the partnership. Joint conferences have already taken place in Umeå, Helsinki, and Oslo. The interactions of students and group leaders and participation in courses and workshops given by research schools are also helping to initiate research collaborations. A conference held at the Centre for Genomic Regulation, CRG, in Barcelona last fall helped the Nordic partners reach out to other EMBL partners.

Several young scientists have already started research groups after joint international recruitment efforts that involved the four institutes and centres of the partnership (see box). The new

group leaders are integrated into pre-existing departments and infrastructures, provided with resources to establish their own laboratories, and have direct access to mentors for guidance and advice. They are supported for up to a maximum of nine years to encourage mobility within the wider scientific community. The renewal and expansion of the partnership will create new opportunities to promote and strengthen molecular medicine throughout the Nordic region.

The Centre for Molecular Medicine Norway (NCMM)

Translation of basic medical research into clinical practice

www.ncmm.uio.no

The Laboratory for Molecular Infection Medicine Sweden (MIMS)

Microbiology and infection biology, high-throughput screening facilities for chemical biology approaches

www.mims.umu.se

Institute for Molecular Medicine Finland (FIMM)

Solutions for human health through the application of personalized medicine, state-of-the-art technologies and biobanks

www.fimm.fi

The Danish Research Institute of Translational Neuroscience (DANDRITE)

Advanced brain imaging, structural and functional studies of membrane proteins, computer-assisted drug discovery

www.dandrite.au.dk

Events

EMBO MEMBERS & FELLOWS

The outstation of the **European Molecular Biology Laboratory (EMBL)** in Hamburg organizes the **11th International Conference on Biological Synchrotron Radiation** from **8–11 September**. The conference aims to bring together scientists involved in the methodical developments on synchrotron and laser sources with a broad community of biologists with an ambition to make the best use of the most advanced infrastructures in structural biology. To register, please go to www.bsr2013.org

EMBO Fellow **Iñaki Ruiz-Trillo** co-organizes the **ICREA Conference on the Evolution of Multicellularity** held in **Barcelona, Spain** from **30 September to 1 October**. The talks will be organized around six mini-symposia encompassing the major topics and approaches related to the evolution of multicellularity. For additional information visit www.multicellularity2013.com

EMBO Member **Angela Nieto** is one of the organizers of the **VI International Epithelial-Mesenchymal Transition Meeting** to be held at Hotel Meliá, Alicante, Spain on **13–16 November**. Applications are open for the Betty Hay Award for a young female group leader, travel fellowships and poster prizes. More at: www.emtmeeting.org

A good read – Publications from the EMBO Community

EMBO MEMBERS, YOUNG INVESTIGATORS & FELLOWS

A ternary AppA–PpsR–DNA complex mediates light regulation of photosynthesis-related gene expression

Andreas Winkler (EMBO Fellow) *et al.*
Nature Structural & Molecular Biology
2 June 2013 | doi:10.1038/nsmb.2597

Dual mode operation of neuronal networks involved in left-right alternation

Julien Bouvier (EMBO Fellow) *et al.*
Nature
doi: 10.1038/nature12286

The rise and fall of the *Phytophthora infestans* lineage that triggered the Irish potato famine

Detlef Weigel (EMBO Member) *et al.*
eLife | 28 May 2013
doi: <http://dx.doi.org/10.7554/eLife.00731>

Pharmacological brake-release of mRNA translation enhances cognitive memory

Peter Walter (EMBO Member), Nahum Sonenberg (EMBO Member) *et al.*
eLife | 28 May 2013
doi: <http://dx.doi.org/10.7554/eLife.00498>

Beta1- and alphaV-class integrins cooperate to regulate myosin II during rigidity sensing of bronectin-based microenvironments

Herbert B. Schiller (EMBO Fellow), Matthias Mann (EMBO Member), Reinhard Fässler (EMBO Member) *et al.*
Nature Cell Biology | 26 May 2013
doi:10.1038/ncb2747

Systematic identification of conserved bacterial c-di-AMP receptor proteins

Rebecca M. Corrigan (EMBO Fellow) *et al.*
Proceedings of the National Academy of Sciences (PNAS) | 13 May 2013
doi:10.1073/pnas.1300595110

Mechanism-based corrector combination restores DF508-CFTR folding and function

Guido Veit (EMBO Fellow) *et al.*
Nature Chemical Biology | 12 May 2013
doi:10.1038/nchembio.1253

Synergy between XMAP215 and EB1 increases microtubule growth rates to physiological levels

Per O. Widlund (EMBO Fellow), Anthony A. Hyman (EMBO Member), Jonathon Howard (EMBO Member) *et al.*
Nature Cell Biology | 12 May 2013
doi:10.1038/ncb2744

Structure of a ubiquitin-loaded HECT ligase reveals the molecular basis for catalytic priming

Simona Polo (EMBO Fellow) *et al.*
Nature Structural & Molecular Biology
5 May 2013
doi:10.1038/nsmb.2566

Structures of the human and *Drosophila* 80S ribosome

Daniel N. Wilson (EMBO Young Investigator), Roland Beckmann (EMBO Member) *et al.*
Nature | 1 May 2013
doi:10.1038/nature12104

Structural basis for substrate transport in the GLUT-homology family of monosaccharide transporters

Christian Löw (EMBO Fellow) *et al.*
Nature Structural & Molecular Biology
28 April 2013
doi:10.1038/nsmb.2569

Extensive transcriptional heterogeneity revealed by isoform profiling

Vicent Pelechano (EMBO Fellow), Lars Steinmetz (EMBO Member) *et al.*
Nature | 24 April 2013
doi:10.1038/nature12121

HDAC-mediated suppression of histone turnover promotes epigenetic stability of heterochromatin

Ozan Aygün (EMBO Fellow) *et al.*
Nature Structural & Molecular Biology
21 April 2013
doi:10.1038/nsmb.2565

The structure of the KtrAB potassium transporter

João H. Morais Cabral (EMBO Installation Grantee) *et al.*
Nature | 17 April 2013
doi:10.1038/nature12055

Absolute quantification of transcription factors during cellular differentiation using multiplexed targeted proteomics

Paola A Gilardoni (EMBO Fellow) *et al.*
Nature Methods | 14 April 2013
doi:10.1038/nmeth.2441

Assembly, analysis and architecture of atypical ubiquitin chains

David Komander (EMBO Young Investigator) *et al.*
Nature Structural & Molecular Biology
7 April 2013 | doi:10.1038/nsmb.2547

The exoribonuclease Dis3L2 defines a novel eukaryotic RNA degradation pathway

Cecilia Arraiano (EMBO Member) *et al.*
The EMBO Journal | 15 March 2013
doi:10.1038/emboj.2013.63

PRC1 coordinates timing of sexual differentiation of female primordial germ cells

Antoine H.F.M. Peters (EMBO Young Investigator) *et al.*
Nature | 13 March 2013
doi:10.1038/nature11918

Multistep protein unfolding during nanopore translocation

David Rodriguez-Larrea (EMBO Fellow) *et al.*
Nature Nanotechnology | 10 March 2013
doi: 10.1038/NNANO.2013.22

Optical control of metabotropic glutamate receptors

Harald Janovjak (EMBO Fellow) *et al.*
Nature Neuroscience | 3 March 2013
doi: 10.1038/nn.3346

Appointments

EMBO MEMBERS

The Trustees of the Nobel Foundation elected **Carl-Henrik Heldin** of Uppsala University, Sweden, as a new member of the Nobel Foundation's Board of Directors. Heldin is also Vice President of the European Research Council (ERC).

Awards of excellence

EMBO MEMBERS

Else Kröner Fresenius Award

The Yale professor for Immunobiology and HHMI Investigator **Ruslan Medzhitov** has received the 4 million euros Else Kröner Fresenius Award from German Federal Research Minister **Johanna Wanka** in early June. Starting with this year's award, the Else Kröner-Fresenius-Foundation announces to launch a four-yearly medical research prize series.

The Brain Prize 2013

Gero Miesenböck from the University of Oxford, UK, is co-recipient of The Brain Prize 2013. The one million euro Brain Prize is awarded by the Grete Lundbeck European Brain Research Foundation in Copenhagen in recognition of highly influential and original work on brain research.

Louis-Jeantet Prize for Medicine

The 2013 Louis-Jeantet Prize for Medicine is awarded to the geneticist, **Michael Stratton**, director of the Wellcome Trust Sanger Institute in Cambridge, and jointly to Peter Hegemann, Humboldt University Berlin, and Georg Nagel from the University of Würzburg. Stratton receives this award worth 700,000 Swiss Francs for his work aimed at understanding the genetic causes of human cancer.

Award for Outstanding Achievement in Chemistry in Cancer Research

The American Association for Cancer Research (AACR) selected **Alexander Levitzki**, professor emeritus at the Hebrew University of Jerusalem, Israel, as the winner of its 2013 Award for Outstanding Achievement in Chemistry in Cancer Research. He was recognized for his work in the development of protein tyrosine kinase inhibitors as effective agents against cancer and a range of other diseases. The AACR established this award in 2007 to recognize the importance of chemistry in cancer research.

American Society of Microbiology Award

Joan Steitz from Yale University, United States, has won the 2013 EMD Millipore Alice C. Evans

Award for Leadership in Clinical Microbiology. This award is given in honour of **Alice C. Evans**, the first woman elected as president of the American Society of Microbiology in 1928. It recognizes contributions towards the advancement of women in microbiology. EMD Millipore, the sponsor of the award, is the life science division of the German pharmaceutical company Merck KGaA.

Academy of Athens

George Kollias has been elected member of the Academy of Athens in recognition of his outstanding research on disease pathways in animal models of chronic inflammation and autoimmunity, including pioneering studies that provided the rationale for the development of anti-TNF therapies for rheumatoid arthritis.

Genetics Society Medal

Robin Allshire of the University of Edinburgh, United Kingdom, was awarded the 2013 Genetics Society Medal for his outstanding research contributions to the fields of epigenetics and chromosome biology. He was presented with the medal by **Enrico Coen**, President of the Genetics Society, at the British Yeast Group Meeting in Nottingham in March 2013.

Royal Society of Edinburgh

Andrew Millar from the University of Edinburgh, United Kingdom, has been elected Fellow of the Royal Society of Edinburgh. This year, 47 United Kingdom and International Fellows have joined the Society also known as Scotland's National Academy.

EMBO YOUNG INVESTIGATORS

Eppendorf Young European Investigators Award

Ben Lehner of the Centre for Genomic Regulation, Spain, has been selected as the 2013 winner of the Eppendorf Award for Young European Investigators. Ben Lehner receives the 15,000 Euros research prize for his discoveries about how mutations in the genome result in variable phenotypes.

Sanford-Burnham Medical Research Institute in Florida, United States, announced the recruitment of **László Nagy** to serve as professor and programme director in its Diabetes and Obesity Research Center. He will join the institute in October to lead a new cross-platform research programme.

Sir David Lane joined the Ludwig Institute for Cancer Research, United States, as its Scientific Director. In this role, he will lead the institute's global cancer research effort, fostering collaboration, coordinating research activities and representing its international network of leading scientists. Prior to joining the Ludwig institute, Professor Lane had been Chief Scientist of Singapore's Agency for Science, Technology and Research (A*STAR).

Research opportunities

The recently expanded **Pasteur Institute of Rome** (see also *EMBOencounters* issue 21) has announced a call for applicants for a new position as **research group leader**. Information about the position offered in the new laboratory can be found at www.istitutopasteur.it/en/?p=1143

The **Queensland Institute of Medical Research in Brisbane**, Australia, headed by EMBO Member **Frank Gannon**, is offering several exciting research opportunities for independent researchers. Full details can be found at www.qimr.edu.au/page/careers/exciting_opportunities

The EMBO Journal Poster Prize winner

Congratulations to the following winner:

Emilie Montembault

Institut Européen de Chimie et Biologie
Pessac, France

Cell elongation, an adaptive response to clear long chromatid arms from the cleavage plane

Presented at French Society of Cell Biology
3rd Cell Cycle and Cancer Meeting
Montpellier, France | 2–5 April 2013

A new look for the EMBO website

Large image gallery, refined structure and improved navigation

EMBO has recently launched a new website to enhance the experience of different target audiences and make information easier to find. More space has been made available for illustrations, images and descriptive headlines.

The new design allows readers to quickly access detailed information on programme highlights, upcoming deadlines and the latest news from the EMBO community. It also emphasizes multimedia elements including video interviews with scientists and audio files such as PodCasts. The online presence of *EMBOencounters* has also been improved.

The changes have been introduced after extensive discussions with scientists and other users. Feedback and comments on the new website (www.embo.org) can be sent to communications@embo.org

Editorial

Managing Editor Barry Whyte

Editor Yvonne Kaul

Print layout Uta Mackensen

Web version Aditya Kusuma Jati

E-newsletter Sandra Krahl, Katja Linssen

Thijn Brummelkamp wins the 2013 EMBO Gold Medal

The 2013 EMBO Gold Medal was awarded to **THIJN BRUMMELKAMP** from the Netherlands Cancer Institute in Amsterdam. The award acknowledges his outstanding work to accelerate the genetic analysis of human disease.

As a predoctoral student, Brummelkamp developed a method that has become standard in many laboratories worldwide: an inexpensive way to permanently inactivate large numbers of genes by the use of RNA interference. This breakthrough involved the development of a new short hairpin RNA vector system (pSUPER) that directs the synthesis of small interfering RNAs in mammalian cells. The method allows researchers to collect detailed information on the function and roles of the many human genes involved in diseases like cancer. Some of his current research projects look at how viruses and bacteria make their way into mammalian cells.



Brummelkamp, 37, is one of the youngest scientists to receive the EMBO Gold Medal.

Further information is available at <http://research.nki.nl/brummelkamplab/Welcome.html>

Biology and a matter of wonder

First published in 2011, *A Matter of wonder: What biology reveals about us, our world and our dreams* is now available for the first time in French. The book, written by EMBO Member **GOTTFRIED SCHATZ**, takes a look at where we come from and some of the lessons that biology can tell us about life.

Gottfried Schatz is a biochemist who has devoted much of his research life to the study of mitochondria. Schatz and colleagues were the first to claim that mitochondria in yeast contain a type of double-stranded DNA molecule that differs from the DNA found in chromosomes. This early work marked the discovery of mitochondrial DNA.

Schatz is also the author of several books that provide insight for the general reader into

how science works and what it reveals about the world. *A matter of wonder: What biology reveals about us* is a collection of essays that look at some of the important findings of the life sciences and explains them in a wider context. Schatz is a firm believer in the value of chemistry as a way to understand biology. He describes the impact of chemistry in a series of essays that explain how universal questions can be addressed by discoveries that arise from the boundaries of scientific disciplines.

The book draws on philosophy, cultural history and art to formulate Schatz's reflections on the mystery of life. Where do we come from? Is our destiny determined by the genes we inherit? Do we all see the same blue colour when we look at the sky? The result is a collection of eloquently and poetically written essays dealing with major issues in the natural sciences.



Au-delà des gènes: Ce que la biologie révèle sur nous, notre monde et nos rêves is available in French from Presses polytechniques et universitaires romande (EPFL Press).

Further information is available at www.ppur.org/produit/604/9782880749859/
Au-dela 20des 20genes

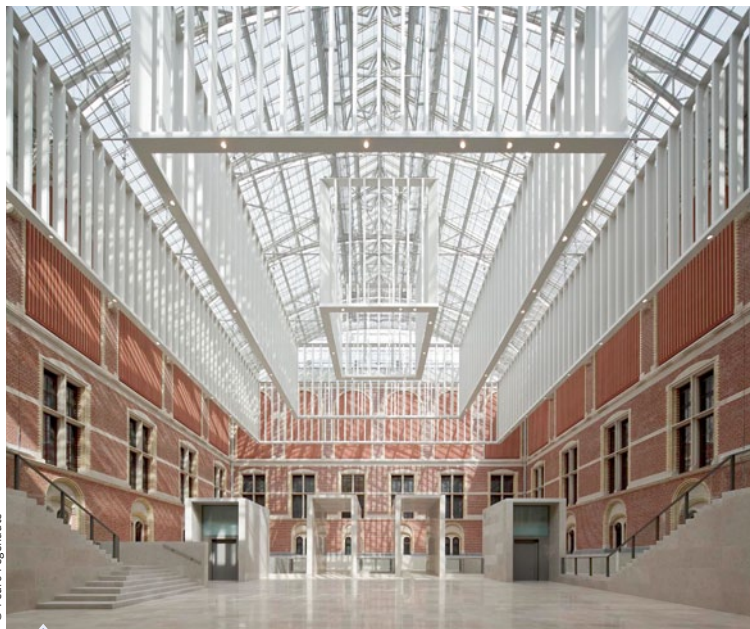


Things to do in Amsterdam

The Dutch capital has a lot to offer visitors. We asked a few members of the local scientific community for their recommendations to help participants of *The EMBO Meeting*.



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If you like history and art, be sure not to miss the recently renovated museums: Stedelijk (www.stedelijk.nl/en), van Gogh Museum (www.vangoghmuseum.nl/vgm/index.jsp) and the Rijksmuseum (www.rijksmuseum.nl/en), are EMBO Member and conference co-chair Titia Sixma's tips. The Rijksmuseum in particular has received rave reviews for its new exhibition layout. Part of the new concept is to place furniture and silver alongside paintings from the same era to tell the history of Dutch art from the Middle Ages to the 21st century.

Jacqueline Jacobs, EMBO Young Investigator and group leader at the Netherlands Cancer Institute (NKI), recommends exploring the city by bike and boat. "Amsterdam is a very compact city and the best way to get around all the sights is to join one of the guided bike tours organised, for example, by [yellowbike.nl](http://www.yellowbike.nl) (www.yellowbike.nl). Alternatively, catch one of the canal boats to experience some of the many canals and take in some of the sights from the water."



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Amsterdam is shopping heaven. Francesca Mattirolli, PhD student at the NKI, recommends 'De 9 Straatjes' (the 9 streets) (www.iamsterdam.com/en-GB/experience/about-amsterdam/areas/featured-areas/9-streets), an area in the Jordaan district named after the nine side streets connecting the main canals. "The area houses lots of little independent shops and galleries and plenty of places to have a drink or bite to eat in a relaxed atmosphere." The streets are also part of the Amsterdam Canal District, which celebrates its 400th anniversary this year and was added to the UNESCO World Heritage list in 2010.

The EMBO Meeting

21–24 September 2013

OPENING LECTURE

Kai Simons

KEYNOTE LECTURE

Hans Clevers

20 concurrent sessions covering the latest research in the life sciences

Online registration closes:
4 SEPTEMBER



Once you have worked up an appetite cycling around the city, Jacqueline recommends ordering an Indonesian rijsttafel at Kantjil & de Tijger (kantjil.nl/en), situated in the heart of the city on Spuistraat. It is a very popular restaurant and advance bookings are recommended.



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