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EMBO encounters

The stars of biomedicine

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TRANSPARENT PROCESS

Inside scientific publishing

Scooping protection and rapid publication

Earlier in the year, we started a series of articles in *EMBOencounters* to inform readers about some of the developments in scientific publishing. The previous article described the 'Transparent Review' process used by *The EMBO Journal, EMBO reports, Molecular Systems Biology* and *EMBO Molecular Medicine*. It emphasized how the journals use *referee cross-commenting* to ensure informed and fair editorial decisions that are transparent and helpful for authors. It also explained the value of publishing referee reports alongside papers.

All the EMBO papers where authors opted for this process are now marked with a diamond. These and other key procedures have been included in a formal description of *The EMBO Transparent Publishing Process* for all four EMBO publications (see Figure 1 and journal websites). Here, I describe the processes developed and used by the EMBO publications that allow authors to publish their best work fast, efficiently and without the constant concern of losing out to competitors.

An important issue for authors in the biosciences is often pressure from competition with other research groups. Several components of *The EMBO Transparent Publishing Process* address this: a *scooping protection* policy, and various steps to ensure rapid handling of the manuscript and to avoid protracted revisions. EMBO editors rapidly respond to submissions. The initial editorial decision ensures that only those manuscripts enter full peer review that have a high chance of acceptance in a timely manner, and referees are asked to judge the work that has been submitted, rather than to suggest what other experiments could have been done, or what follow-up work should be performed. If additional experimental evidence is required to support the claims, we request that referees focus on essential changes and consider the feasibility of the experiments that they suggest. Revisions are invited only if they are possible in a realistic time frame. Indeed, almost all of the manuscripts returned to authors for revision end up being published, usually within four months, which includes revision and publication time. Very few manuscripts undergo more than one major round of revision, as the editors request and monitor that referees do not raise new non-essential points after the first revision.

It may happen during the course of the review process or during revision that a similar study appears elsewhere. At EMBO publications, similar findings published by others during review or revision are not a criterion for the rejection of a paper. This allows authors to receive the credit they deserve for the independent scientific findings reported. Note that while we suggest revision times these can be discussed with the editors – the overriding goal is to ensure time for thorough, essential revision.

The *EMBO Transparent Publishing Process* helps ensure that excellent research can be shared with colleagues in a timely manner. It is the role of scientific journals to aid the scientific community, not to slow down research progress, and we hope that other journals will adopt similar strategies.

Bernd Pulverer
EMBO Head of Scientific Publications

Further information on the EMBO Transparent Editorial Process is available at www.nature.com/emboj/about/process.html

Figure 1
The EMBO Transparent Publishing Process

Question time at the 4th EMBO Meeting in Nice, France

Eric Zaragoza | Vence | Côte d'Azur

From the cell cycle to the evolution of life

THE 4TH EMBO MEETING took place at the Acropolis Convention Centre in Nice, France, on 22–25 September 2012. More than 1000 scientists from across the globe attended the event to hear leading scientists talk about the latest developments in the life sciences.

Paul Nurse, President of the Royal Society and Director of the Francis Crick Institute, opened the meeting with a keynote lecture that examined the intricacies of the control of the cell cycle. He emphasized the importance of genetics for understanding the many processes involved in the control of the cell cycle but cautioned that it was often necessary to simplify large genetic and protein networks before tackling biological questions.

Eric Karsenti, Co-Director of the TARA OCEANS project and Senior Group Leader at EMBL, gave the special lecture on the second day of the meeting. In a talk rich in visual content, Karsenti described the forgotten world of the living ocean revealed by the two-and-a-half year voyage of the TARA OCEANS expedition. "98% of the biomass in the oceans is unicellular and the different types of ocean environments that these organisms inhabit is a clear driving force of evolution," remarked Karsenti. "We have discovered many new species of plankton during our voyage. Now we are starting the next phase of investigation where we will use the experimental data to build and run computational models that will describe in detail the evolution of marine ecosystems."

Linda Partridge, Director of the Institute of Healthy Ageing in Cologne, Germany, and Director of the University College London Institute of Healthy Ageing in the United Kingdom, gave the keynote lecture on Monday that focused on the biology of ageing. "Ageing is malleable to single gene mutations," said Partridge. "Slowing ageing by mutations or drugs can protect against diverse ageing-related diseases. In time, it should be possible to use drugs to improve human lifespan and the quality of life as we age."

The EMBO Meeting included 20 concurrent sessions that spanned topics such as optogenetics, chromatin regulation, the world of RNA and the link between oxygen sensing and disease.

Karl Deisseroth, Professor at Stanford University in the United States, explained how the combination of genetic and optical methods is allowing scientists to understand at very high-resolution events that are taking place within living tissues or organisms. "Optogenetics is a way of making specific cells in a living organism responsive to light. You can control cells with all the precision that flashes of light have." Deisseroth and colleagues introduce microbial opsin genes into animal tissues to achieve very precise control of neurons with light. In this way, specific neurons can be turned on or off and it is possible to investigate the impact of these cells on the behavior of rats that show symptoms of neurological and psychiatric diseases.

In his plenary lecture on the last day of the meeting, Peter Carmeliet, Director of the VIB Vesalius Research Center at the University of Leuven in Belgium, described strategies to control angiogenesis by targeting endothelial metabolism. Carmeliet likened this approach to "blocking the engine rather than the driver." In this case, the engine is the metabolic switch that fuels the proliferation of blood vessels that often accompanies diseases like cancer.

Kari Alitalo, Professor of the Finnish Academy of Sciences and Director of the Center of Excellence at the Biomedicum Helsinki research institute at the University of Helsinki, Finland, revealed the therapeutic potential of vascular endothelial growth factors. He described several preclinical studies that indicate the potential for the development of therapeutics, in many cases antibodies, that affect the activities of these growth factors and which may have beneficial effects in cardiovascular disease and cancer. Some of these therapeutics candidates are entering early-stage clinical trials.

Founder and President of Beijing Genomics Institute visits EMBO

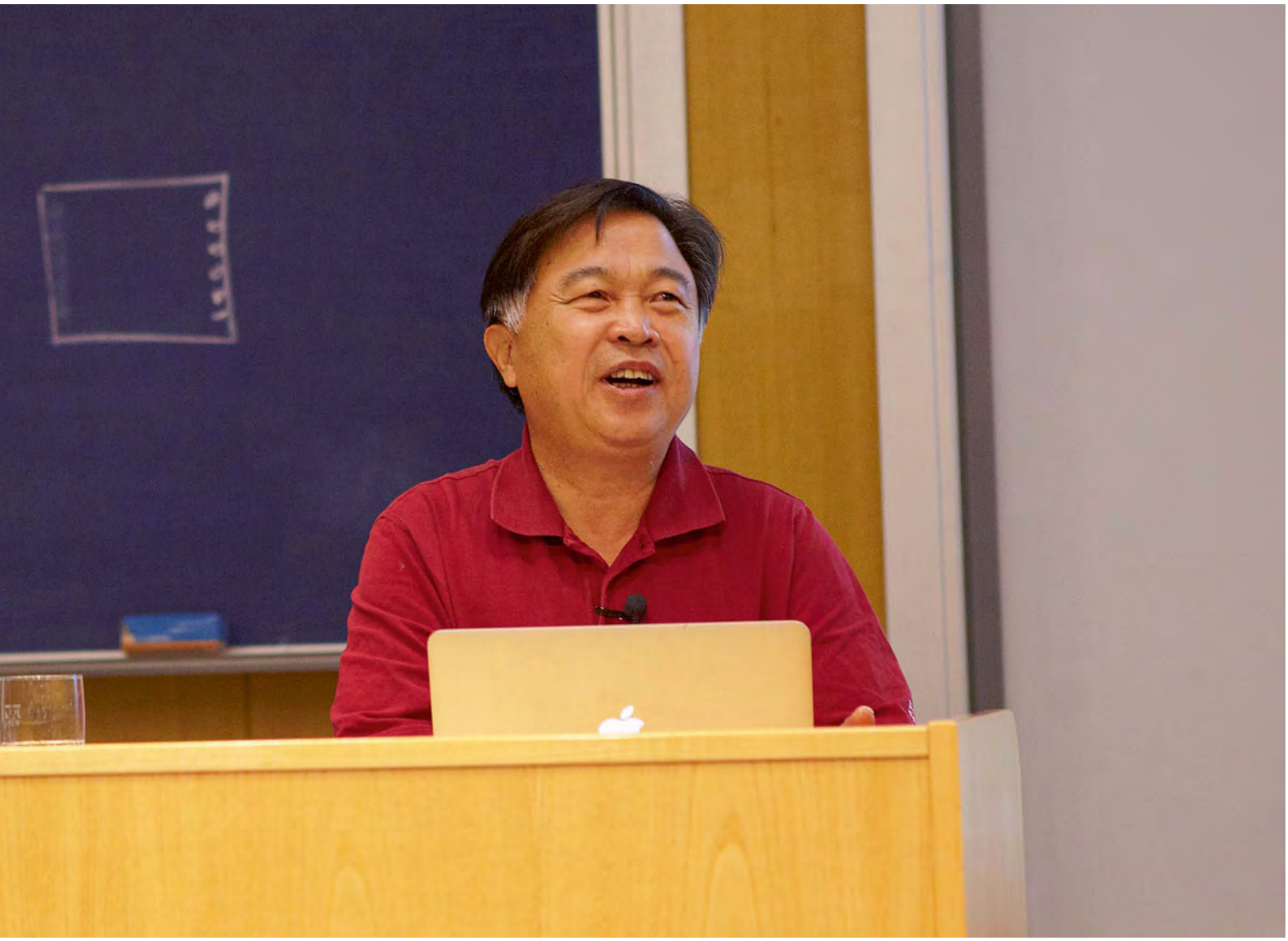
The Human Genome Project completed in 2003 was the first large-scale international collaborative project that saw China as one of the major partners. With its rapid advances in life sciences and biotechnology in recent years, China's presence in international collaborations has been steadily growing. The Shenzhen-based Beijing Genomics Institute (BGI) is at the forefront of this development. The 1999-founded nonprofit institute has meanwhile become the world's largest sequencing centre. At the beginning of September, EMBO welcomed the president of BGI, HUANMING YANG, for a short visit to Heidelberg. Huanming Yang, who is an associate EMBO Member, came to give a talk at EMBL on Genomics in Life Sciences and to discuss potential areas of future collaboration with EMBO.

Huanming Yang met with Maria Leptin, Director of EMBO, and other members of the management team during his visit to Heidelberg. A wide range of discussions took place that focused on training and partnership opportunities designed to strengthen relationships between European and Asian scientists. Both EMBO and Professor Yang will explore possibilities to put in place courses and workshops in China for young principal investigators, assess other ways to pursue network opportunities between European and Chinese scientists, and look at activities that will specifically support the communication and development of science-related policy, ethics and scientific publications.

Earlier in the year, EMBO Director Maria Leptin visited the BGI headquarters in Shenzhen. On 27 April, she met senior members of the BGI management team and also gave a lecture entitled "The genetics and cell biology of complex cell shapes."

Large-scale sequencing is the bread and butter business of BGI. Silkworms, rice, chickens, and pigs are but a few examples of the organisms large and small that the institute's scientists have already sequenced. The research findings have resulted in more than 250 publications, many of them in top-tier journals such as Science and Nature. As the core technology of genomics, sequencing has laid "the digital foundation onto which the systems approaches of the future will be built," stated Huanming Yang in his presentation held at EMBL. He mentioned that in its short history, BGI has made good use of the opportunities arising from the three breakthroughs in sequencing technology: from hand to automation, from slab gel to capillary sequencing, and the move to next-generation sequencing.

BGI President Huanming Yang in discussion with EMBO managers



Huanming Yang gives a lecture entitled Genomics in Life Sciences at the EMBL Large Operon

BGI is perhaps best known for decoding the panda genome, as well as the genome of a Chinese individual, the third announced human genome published worldwide, after Watson and Venter. It was in 2007 that BGI sequenced the genome of an anonymous individual known only by the initials, Y.H. "I cannot say it's me," said Yang but he does not hesitate to outline the bioethical issues around genome ownership.

But "genomics cannot be done alone, it is international." Cooperation and academic exchange are therefore key for the institute. Yang mentioned the role of BGI in the International Human HapMap Project and its contribution to the Sino-British Chicken Genome Project. The institute continues to expand to overseas countries and in the meantime maintains subsidiaries in Europe, the United States, Japan and the Asia-Pacific region.

The collaborative system also enables BGI to move from basic research to application. Yang gave a few examples of novel medical techniques co-developed at BGI including exome sequencing for monogenic diseases, non-invasive prenatal testing, cancer genome research and research on our other genome, the human gut microbiome. The 59-year-old geneticist is convinced that the combination of novel genomic techniques such as stem cells and induced pluripotent stem cells, synthetic biology and cloning will make the twenty-first century a real century of biology.

Laboratory facilities at BGI Beijing

BGI Tianjin, China

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IFOM expanding into Asia

The Milan-based Institute of Molecular Oncology Foundation finds innovative ways of recruiting top group leaders.

"We are proud of our country and culture but we acknowledge that senior researchers from overseas face various entry barriers when moving to our institute," says Marco Foiani, EMBO Member and director of the Institute of Molecular Oncology Foundation (IFOM) in Italy. The molecular biologist is just one of five EMBO Members on the IFOM board of senior group leaders. The institute is part of a strong network of alliances and strategic partnerships with other Italian institutes. But according to recent survey, foreign scientists rarely choose Italy as their destination because of the excessive bureaucracy, poor housing and a challenging situation for childcare.

Not being able to recruit more top group leaders from other countries, the institute decided to solve this problem by going abroad itself – to Asia. Singapore was the first Asian country to launch a new partnership with IFOM in 2011.

In the same year, EMBO also signed a cooperation agreement with Singapore (see EMBOencounters issue 19) that allows its scientists to participate in EMBO programmes. Both institutes realized that joining forces on Asian territory might help them strengthen the newly established ties. To discuss synergies in their respective global activities, Foiani and other IFOM representatives came to Heidelberg and met with EMBO leadership in early June. "The meeting was excellent," commented both sides. "We found lots of common ground," said Foiani.

IFOM's expansion always follows the same pattern. It is launched by an agreement with one or more local institutes. The partners then set up a joint research laboratory and the investments as well as the revenues from patents are shared fifty-fifty. Staff have a dual affiliation and publications acknowledge both partner organizations. "We started with Singapore, because of its deep experience in the life sciences," explains Foiani. IFOM signed an agreement with the Agency for Science, Technology and Research (A*STAR), one of the top institutes in Singapore, and jointly appointed Cheok Chit Fang as the leader of the joint lab in July 2011.

In 2012, Bangalore in India became the second partner. The agreement was signed with three local partners including the National Centre for Biological Sciences NCBS in Bangalore. Now discussions about cooperation agreements with the Kyoto University in Japan are under way. During a joint symposium in late October, scientists from Kyoto University Medical School and IFOM had a chance to exchange their latest findings in stem cell research, signalling in development, mechanisms of tumour suppression and other fields.

"We have already had a huge return on our investment in Asia," summarizes IFOM director Foiani. Vacancies in Milan attract top postdoctoral researchers from all over the world and around half of the scientists in the director's lab come from Asia. The plan is to strengthen IFOM's alliances even further – a vision shared by EMBO that also hopes to catalyse more exchange in future for world-class scientific research.

Upcoming deadlines

EMBO Plenary Lectures
1 December

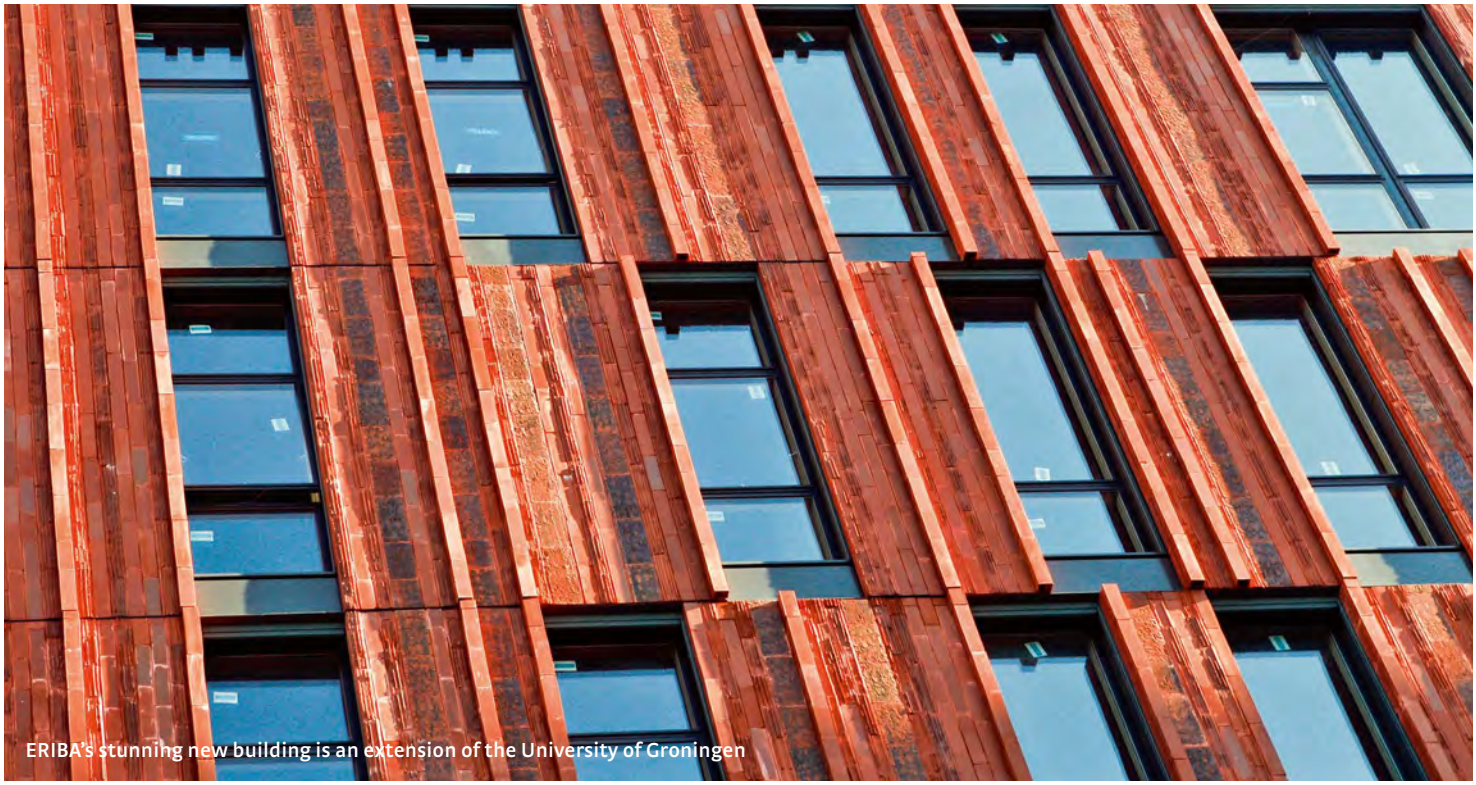
EMBO Long-Term Fellowships
15 February

EMBO Courses & Workshops
1 March

Next issue *EMBOencounters*

The next *EMBOencounters* issue – **Winter 2012|2013** – will be dispatched in **February 2013.**

Please send your suggestions, contributions and news, to **communications@embo.org** by **11 January 2013.**



ERIBA's stunning new building is an extension of the University of Groningen

European Research Institute for the Biology of Ageing off to a flying start

The newly established EUROPEAN RESEARCH INSTITUTE FOR THE BIOLOGY OF AGEING (ERIBA) has opened its doors in June 2012. This joint venture between University Medical Center Groningen (UMCG) and University of Groningen focuses on basic research into the molecular mechanisms that cause ageing.

Says Peter Lansdorp, scientific director of ERIBA: "All team leaders are internationally known specialists in their respective areas of expertise on the biology of ageing. Each investigator has a network of international collaborations, ensuring an effective flow of information within our institute. Enthusiastic group leaders, state-of-the-art equipment and a brand-new building will make our institute a very attractive place to work."

Why do proteins aggregate in certain cells over time? Why do DNA repair processes differ between cell types? How often can immune cells and tissue stem cells divide? What is limiting this ability and the function of these cells over time? All these questions have something in common – a clear link to the biology of ageing. For example, protein aggregates in brain cells are known to cause Alzheimer's disease and limits in the renewal of immune and blood forming stem cells are known to cause immune and blood cell deficiencies. While research into these diverse areas may seem unrelated, possible links have a chance to be discovered by direct and effective interactions between ERIBA researchers.

Biology of ageing is scientifically exciting and highly timely, but the field of ageing research is very broad and not easily defined. Where does ageing start and where does it end? Clearly,researchers in ERIBA cannot cover all areas that are relevant for ageing research. Instead, a few specific topics are investigated in depth using a multidisciplinary approach.

The institute's new impressive building is connected to the UMCG, and most of the recently recruited principal investigators are UMCG employees. The presence of a large medical center is a major incentive for the researchers as is the close proximity of LifeLines, a large epidemiological study and biobank with medical records and biospecimens from more than 100,000 individuals over three generations in Northern Netherlands. The UMCG offers a wide range of research facilities, outstanding clinical expertise, and access to valuable collections of human samples, which are key for many ERIBA principal investigators.

The vision of a top research institute with a flat organizational structure, interactive environment, cutting-edge facilities and competitive scientists has already started to bear fruit. Last year, Peter Lansdorp received an ERC advanced grant and Ellen Nollen, an EMBO Young Investigator, received an ERC starting grant. Another ERC starting grant was awarded this year to Eugene Berezikov, who is also an EMBO Young Investigator. Furthermore, an international consortium led by Peter Lansdorp has won a competition for establishing the Skolkovo Center for Stem Cell Research. The Russian government has reserved funding worth 50 million US dollars for this project, of which almost 10 million US dollars will go to ERIBA.

Laboratories and offices in the building are right next to each other

The stars of biomedicine

Zebrafish are easy to breed, transparent and their eggs develop outside the body of the mother, allowing researchers to observe embryonic development without harming adult animals. Perhaps most importantly, many of their genes are identical to those of humans. This all makes the zebrafish, *Danio rerio*, an excellent model organism to better understand the molecular underpinnings of human diseases ranging from cancer to cardiovascular diseases, myopathy and neurodegenerative diseases.

At the end of July, the biggest zebrafish repository in Europe was opened at the Karlsruhe Institute of Technology in southern Germany. The European Zebrafish Resource Center (EZRC) maintains more than three thousand aquaria as well as freezers for 50,000 sperm samples. EMBO Member Christiane Nüsslein-Volhard from the Max Planck Institute for Developmental Biology in Tübingen, Germany talked about her pioneering role in European zebrafish research at the opening ceremony.

"The idea of conducting research on vertebrates electrified me," remembered Nüsslein-Volhard. Until the late eighties, she had focused on analysing the genetic control of embryo development in *Drosophila*. It was only after she had heard about the research results of United States scientist George Streisinger that she also started to work on vertebrates. Streisinger, who was a professor at the University of Oregon until his death in 1984, is considered by many of his peers to be the founding father of zebrafish developmental and genetic research. "Our lab in Tübingen was among the first in Europe to work with zebrafish," said the 1995 Nobel laureate.

One of the problems her team faced was to breed fish families on a large scale. She knew from research on fruit flies that four to five thousand families are needed to identify the genes responsible for embryo development. Building a fish house for seven thousand aquaria in 1992 improved the situation and Nüsslein-Volhard's group finished the screening of the mutants in only a few months. Then, her team submitted twenty-two manuscripts for a special issue of the journal Development – again, within a year. "That was a great time," recalls the scientist.

Wolfgang Driever, her former PhD student and now head of Developmental Biology at the University of Freiburg, explained in the next presentation why zebrafish are fascinating model organisms for neuroscientists. The striped fish have stunning regenerative skills. They are capable of developing dopaminergic neurons throughout their life – unlike humans. The loss of these neurons is irreversible in human organisms – and is responsible for neurological diseases such as Alzheimer's.

In recent years, European labs have generated thousands of zebrafish lines, each of which carries either a particular mutation that can serve as a model for a human disease. However, in contrast to their US colleagues, European researchers were lacking a central repository to store and distribute these fish. This role will be assumed by the EZRC in future. The institute will also function as the first zebrafish screening centre worldwide, welcoming guest researchers from all over the globe to perform systematic research on these vertebrates. The Karlsruhe Institute of Technology is an ideal location for such a centre as it offers a unique interdisciplinary environment combining top research in natural and engineering sciences.

Top: The zebrafish *Danio rerio*

Aquaria

High throughput laboratory facility

Life would be impossible without membranes

GUNNAR VON HEIJNE is Director of the Center for Biomembrane Research at Stockholm University. He has been an EMBO Member since 1994, was a member of the EMBO Council from 2004 to 2009, and a member of the Nobel Committee for Chemistry from 1998 to 2009. In 2012, he was awarded the Accomplishment by a Senior Scientist Award by the International Society for Computational Biology. Katja Linssen spoke to him at ISBM 2012 where he received the award.

Why is it important to study biomembranes?

Cells are full of membranes and life would be impossible without them or some sort of similar structure separating different parts of the cell from each other. In addition, many drug targets are membrane proteins or proteins associated with membranes which makes them even more attractive for study.

How have methods used to study biomembranes recently changed?

There has been much more emphasis on membrane lipids lately. This has also led to a lot of new ideas about protein-lipid interactions. Like in so many other areas, structural biology has become very important. We now see rapid growth in this area and this has rejuvenated interest in biomembrane research.

How do you implement these new methodologies in your own research?

We do not usually develop new methods in my group. We use the methods that are easily accessible and robust to address issues concerning the biogenesis of membrane proteins. It's like when a new computer comes out - you wait for the little defects to be straightened out and you wait for it to become a robust technology. Our approach is to tackle questions that interest us in a very systematic way, and this may in some way make us a little different from many other research groups in the field.

You are a director of the Centre for Biomembrane Research in Stockholm. What were the challenges setting up such a multidisciplinary centre?

The centre has become multidisciplinary almost by default. The grant we received to start the centre allowed us to focus very clearly on biomembrane research. We recruited a couple of new groups, and funded some projects we wouldn't have been able to do otherwise. It created a common mission amongst the mostly young group leaders. That has made the environment interesting enough that many young scientists coming to Sweden after their postdocs are now asking if they can join our centre, often bringing their own money.

What are the benefits of a multidisciplinary environment?

People like the idea that everybody does a somewhat different thing. For example, as a bench scientist it's quite easy to find bioinformatics expertise if you need it. You can also convince a crystallographer to work on an experiment with you. It has been great fun to see all these young people working together and enjoying themselves. Of course, they are always under pressure of making a career, but overall the multidisciplinary approach has yielded a good return on investment in terms of generating a scientific environment that people enjoy.

What is the research culture like in Sweden?

A lot of emphasis is placed on individuality and independence. We tend to have smaller individual groups that form a department, rather than one or two big groups. The head of department does not have much of a say when it comes to the science, because almost all of the science is funded by external grants that go to the individual principal investigators. There are some issues. For example, we do not have a real tenure system yet, and as a young assistant professor it is very uncertain what is going to happen. However, the funding is respectable as Sweden is one of the few countries where the public finances are still in pretty good shape.

Going up one level from Sweden to Europe. What do you currently see as the major developments in scientific research in Europe?

One thing that made a big difference to basic science in the European context is the European Research Council (ERC). EMBO played an important part in making the ERC become a reality. ERC really means a lot, not just to the individual researcher, but to the department and the university if someone receives an ERC grant, either a Starting Grant or an Advanced Grant. So, I just hope that the ERC can continue doing things the way they have done so far.

What role should EMBO play in Europe?

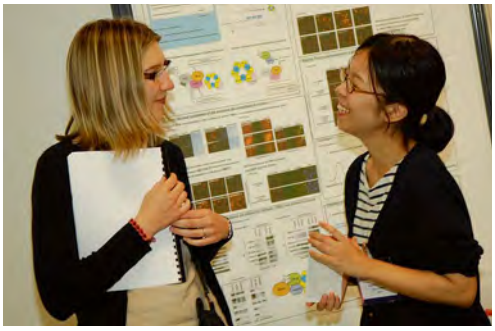
EMBO has multiple roles. Within the scientific community the Young Investigator Programme has made a real difference. It is not primarily about the funding, but it means so much for a young person to be recognized and also to become part of that network. A couple of people in my immediate vicinity are EMBO Young Investigators. So I have seen what it meant to them and how much they got out of it. And then of course EMBO can assume a political role. Because it is independent and based on scientific excellence it can speak for the European scientific community and has a clear agenda.

Latest paper by the von Heijne lab published in October this year:

A biphasic pulling force acts on transmembrane helices during translocon-mediated membrane integration
Nurzian Ismail, Rickard Hedman, Nina Schiller, Gunnar von Heijne
Nature Structural & Molecular Biology **19**(10): 1018–1022

Jiří Friml receives the EMBO Gold Medal 2012

Ingrid Grummt, German Cancer Research Center, Heidelberg, Germany



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THE EMBO MEETING 2012

Jiří Friml was awarded the EMBO Gold Medal 2012 at The EMBO Meeting in Nice, France on Sunday September 23. Friml received his award for defining how the plant hormone auxin functions to regulate plant development. He was also recognized for showing how the auxin-governed molecular processes optimise adaptation of plant development and growth to ever-changing environmental conditions.

Jiří Friml performed his PhD work at the Max Planck Institute for Plant Breeding Research in Cologne, Germany, and obtained his PhD in Biology from the University of Cologne in 2000. He was also awarded a PhD in Biochemistry in 2002 from Masaryk University in Brno, Czech Republic. In his doctoral studies, he was already providing crucial insight into the mechanisms of transport and distribution of auxin and its role in plant development. For his outstanding scientific contributions during his PhD studies, the Max Planck Society awarded him the prestigious Otto-Hahn Medal.

The 4th EMBO Meeting included a wide range of talks from scientists from many disciplines. Ingrid Grummt, Professor at the German Cancer Research Center (DFKZ) in Heidelberg, Germany, explained how non-coding RNA controls epigenetic processes in a plenary lecture. In her talk, Grummt outlined how non-coding mRNAs may guide DNA methyltransferases to specific target sites on the genome to methylate DNA and switch off transcription.

In another plenary lecture, Adrian Bird from the Wellcome Trust Centre for Cell Biology at the University of Edinburgh, United Kingdom, described how the dinucleotide CpG can serve as a genomic signaling molecule. The local density

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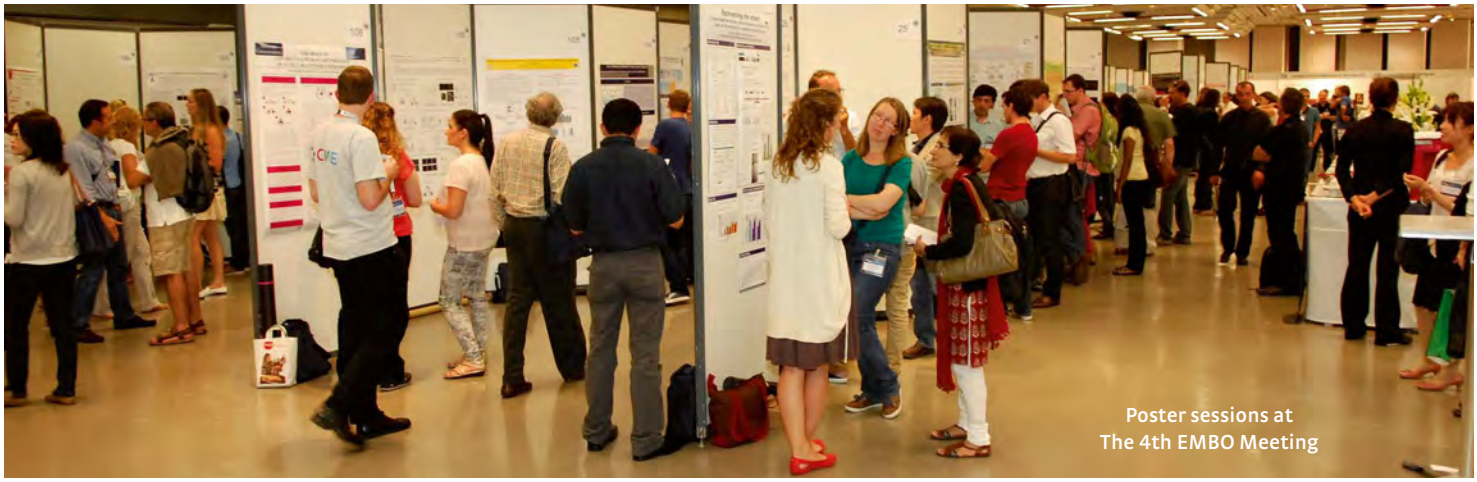
Fiona Powrie, Nuffield Department of Clinical Medicine, University of Oxford, England

Matthias Mann, Max Planck Institute of Biochemistry, Martinsried, Germany


Poster sessions at The 4th EMBO Meeting

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of CpG varies dramatically at different parts of the genome. He explained how mutations in the gene for the methyl CpG binding protein MeCP2 lead to the autism spectrum disorder Rett Syndrome. His group and other scientists are able to study Rett Syndrome in a mouse model system where the neurological phenotype linked to the condition is reversible.

Richard Durbin from the Wellcome Trust Sanger Institute in the United Kingdom talked about how it is now possible to study genetic diversity by looking at the full genome sequences of multiple individuals. As well as supporting evolutionary and population genetic studies, this type of approach allows phenotype association studies to be extended to all types of genetic variation, not just common variation assayed using genotyping chips. Durbin also discussed some of the recent results from the 1000 Genomes Project, and various studies to correlate genetic variation with variation between individuals in cellular traits such as microRNA expression, and protein binding to DNA measured by chromatin immunoprecipitation sequencing (ChIP-seq). Speaking at the meeting, he remarked "More than 1000 individual human genomes have already been sequenced in the 1000 Genomes Project." In its entirety, the project aims to sequence 2500 individuals in total both by low coverage whole genome sequencing and exome sequencing.

The Louis-Jeantet Prize lecture took place on Monday September 24. Matthias Mann from the Max Planck Institute of Biochemistry in Martinsried discussed recent progress in proteomics technologies that is allowing scientists to identify and quantify thousands of proteins in just a few hours. Said Mann "Maybe these new developments can have a place in the clinic but it still needs to be proven." In his lecture, Mann mentioned that around 10% of women are still misclassified for breast cancer. More accurate classification of breast cancer patients into existing subtypes was needed and perhaps here proteomics technologies could play an important role.

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The humble artistry of the experiment

PAUL NURSE is President of the Royal Society and Director of the Francis Crick Institute in the United Kingdom. In 2001, together with Lee Hartwell and Tim Hunt, he was awarded the Nobel Prize in Physiology or Medicine for the discovery of key regulators of the cell cycle. At The 4th EMBO Meeting in Nice, France, he talked to Barry Whyte about science, society and his new venture, THE FRANCIS CRICK INSTITUTE.

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In 2013, you will become Secretary General of EMBO? Why did you take on this role?

The European Molecular Biology Organization, EMBO, was really important in my life first of all. I learned to clone and manipulate DNA very early on in a course in 1980 that was supported by EMBO. I have been grateful ever since because it transformed my research life. So whenever I am asked by EMBO to do something I do it if I am able to. I have chaired EMBO Council and I have been a Member of EMBO Council. I then left to go to the United States and I had a bit of break for the last eight years or so. When they asked me to become Secretary General I was really pleased to do it.

You mentioned the United States. What was it like to do science in the US versus the United Kingdom?

That was really interesting because I had never worked in the United States before. In fact, I had never spent more than one or two weeks in the US. And then suddenly I was over there running The Rockefeller University, a research institute of 2000 people. I had to learn a lot about how American society works and how, in particular, American science works.

There are many similarities. We work for similar values. We respect the same things. Science is truly international. It crosses cultural barriers much easier than other activities but there are also differences. In America, there is greater emphasis on the individual. If you have a good scientist they usually can attract good support and funding. There is perhaps less emphasis on working together in communal and societal ways to do science, because it is driven more by individuals. That's a difference.

More of this interview is available on *The EMBO Meeting* YouTube channel **www.youtube.com/user/embomeeting**

What advice would you give to a young scientist?

If you are going to do scientific research you have to be a complete enthusiast. You have to have a burning desire to want to know the answers. If you are only half-hearted it is such a long grind that you are not going to get through it. You also have to get satisfaction from small things - from doing a good experiment - the humble artistry of doing the experiment. You are never going to get these big discoveries occurring sufficiently frequently to keep you motivated. That's only going to happen rarely.

Some statistics show that young investigators are receiving their first grant in their 40s. What do you think of this situation?

Well I think it is very, very bad. It is also an increasing trend in Europe. I had my first independent grant in my late 20s. It was completely different. I was already head of a department in Oxford at 39. It was much more accelerated. I think you need to support and promote young independent researchers as early as possible. We really have to identify good people when they are young, when they are most creative. We have to back them. And then we make a judgment and if they are not doing well you pull the money out. Give them a chance. Let them get on with it.

We have had a great era of physics research, and a great era of molecular biology research, which is ongoing. What comes next?

I think for me it's putting together molecular biology with the thinking that comes from the physical sciences to get a better understanding of what life is and how it works. My own view, and I am a cell biologist, is that the focus that will yield first is understanding how the cell, the simplest unit of life, works. This is going to be shown by a combination of sophisticated molecular and cellular biology and combining it with the thinking and techniques that will come from bioinformatics, physics, chemistry and from maths. We are going to see a much more multidisciplinary approach to scientific problems.

You are heavily involved in the Francis Crick Institute which will open in 2015. What are your plans for science at the institute?

The Francis Crick Institute is quite a complicated venture. Its based on a merger between the Medical Research Council-funded National Institute of Medical Research in North London, which is run at the moment by Jim Smith, and the Cancer Research UK London Research Institute, in central London and also in the outskirts, which is run by Richard Treisman. It is a big merger of preexisting institutes. What we are doing is taking the running money of these institutes and combining it with a little bit more, mainly from the Wellcome Trust, to set up this new institute. It is going to be a biomedical and biological research institute.

It will be a consortium of the Medical Research Council, Cancer Research UK, the Wellcome Trust and three universities – University College London, Imperial College and King's College - and that's to drive the multidisciplinary agenda that biology needs in the coming decades.

Are you going to have major programme areas?

It is going to be large which is relevant to your question. We will have 1300-1500 researchers there. We can actually cover a wide range of programmes. Unlike most institutes, especially when they are formed, for example a stem cell institute or an immunology institute, we will cover all the bases. The philosophy behind it is to look for the best athlete, the best scientist, rather than to define the programme.

So you are thinking very much about the culture of this institute rather than the programme areas?

I think we completely underestimate the importance of culture in producing good quality science. When people talk about scientific strategy they always think about what programmes can you set up? Programmes change and they change very rapidly. What does not change is the culture of the institute. Once you set the culture up it often lasts for many decades.

Investigating pathogens at the Institute for Molecular Infection Biology

The Institute for Molecular Infection Biology (IMIB) at the University of Würzburg, Germany, will celebrate its 20th anniversary in 2013. The past decades have seen significant growth of interdisciplinary research programmes focusing on pathogens and infectious disease processes. Members of the institute work closely with other life science researchers at the University of Würzburg to investigate fundamental biological problems and molecular mechanisms.

Jörg Vogel, Director of the Institute for Molecular Infection Biology

The appointment of EMBO Member Jörg Vogel as the chair of the institute in 2009 has resulted in an expansion of the traditionally important research areas in bacterial and eukaryotic cell biology, immunology, and gene regulation to also encompass fundamental aspects of RNA biology. In particular, researchers are investigating the role of RNA as a regulatory molecule, as a molecule transferred between cells, and the relationship of different RNA classes with the processes of infection. This includes providing new insight into the roles of non-coding RNAs in host-pathogen interactions and how pathogens subvert the RNA metabolism of the host.

"We are putting in place a dynamic and ambitious research programme that centers around the study of infectious pathogens and disease," said Jörg Vogel, Director of the IMIB, while recently attending The EMBO Meeting in Nice, France. "Over the years, we have placed considerable emphasis on attracting young investigators to our institute and making sure that they have opportunities to move into tenured full-professorship positions that reflect their standing, progress and potential in the scientific community." He added: "The way we integrate our young investigator programme into our research activities has been successfully adopted by many universities throughout Germany," he added.

Four research groups of the prestigious ZINF Young Investigator program currently reside at the IMIB. In this context, the IMIB has been working closely with the Center for Infectious Disease Research (Zentrum für Infektionsforschung, ZINF), which will also celebrate its 20th anniversary in 2013. These young investigators are investigating the link between aspergillus and disease, deep sequencing approaches to pathogenesis, bacterial cell differentiation and parasite gene regulation.

Both IMIB and ZINF have strong ties to EMBO. The Institute and Center were founded by EMBO Member Jörg Hacker who went on to be President of the Robert Koch Institute and is currently the President of the German Academy of Sciences Leopoldina. Subsequently, current director Jörg Vogel was elected as an EMBO Member in 2011.

"The Institute for Molecular Infection Biology has made outstanding progress in its mission to put in place a diverse research programme devoted to the study of bacterial and other pathogens, and should be congratulated on its efforts to integrate younger researchers into its activities," said Pascale Cossart, EMBO Member and Professor at the Pasteur Institute, Paris.

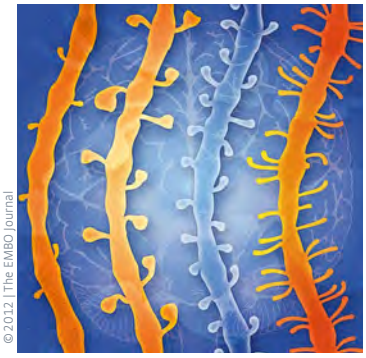
Institute for Molecular Infection Biology at a glance:

- Institute for Molecular Infection Biology (IMIB), University of Würzburg www.imib-wuerzburg.de/imib
- Founded: 1993
- Total number of researchers: 75
- Research groups: 11
- Scientific publications 2011: 52
- Total expenditure 2011: 4.8 million Euros
- Competitive funding: 2.9 million Euros

THE EMBO JOURNAL

RESEARCH ARTICLE

Fragile X and Down syndromes share signalling pathway for intellectual disability



Intellectual disability due to Fragile X and Down syndromes involves similar molecular pathways. The two disorders share disturbances in the molecular events that regulate the way nerve cells develop dendritic spines, the small extensions found on the surface of nerve cells that are crucial for communication in the brain.

"We have shown for the first time that some of the proteins altered in Fragile X and Down syndromes are common molecular triggers of intellectual disability in both disorders," said Kyung-Tai Min, one of the lead authors of the study and a professor at Indiana University and the Ulsan National Institute of Science and Technology in Korea.

"Specifically, two proteins interact with each other in a way that limits the formation of spines or protrusions on the surface of dendrites." He added: "These outgrowths of the cell are essential for the formation of new contacts with other nerve cells and for the successful transmission of nerve signals. When the spines are impaired, information transfer is impeded and mental retardation takes hold."

DSCR1 interacts with FMRP and is required for spine morphogenesis and local protein synthesis
Wei Wang, John Z. Zhu, Karen T. Chang, Kyung-Tai Min

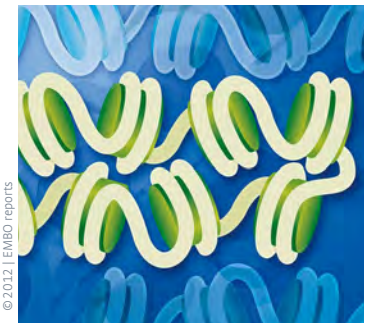
Read the paper:
doi:10.1038/emboj.2012.190

EMBO reports

SCIENTIFIC REPORT

No evidence for 30-nm chromatin fibres in the mouse genome

Scientists in Canada and the United States have used three-dimensional imaging techniques to settle a long-standing debate about how DNA and structural proteins are packaged into chromatin fibres. The researchers reveal that the mouse genome consists of 10-nm chromatin fibres but did not find evidence for the wider 30-nm fibres that were previously thought to be important components of the DNA architecture.



"DNA is an exceptionally long molecule that can reach several metres in length. This means it needs to be packaged into a highly compact state to fit within the limited space of the cell nucleus," said David Bazett-Jones, Senior Scientist at the Hospital for Sick Children, Toronto, and the Professor at the University of Toronto, Canada. "For the past few decades, scientists have favoured structural models for chromatin organization where DNA is first wrapped around proteins in nucleosomes. In one possible model, the strand of repeating nucleosomes is wrapped further into a higher-order thick 30-nm fibre. In a second model, the 30-nm fibre is not required to compact the DNA. Differences between these models have implications for the way the cell regulates the transcription of genes."

Open and closed domains in the mouse genome are configured as 10 nm chromatin fibres
Eden Fussner, Mike Strauss, Ugljesa Djuric, Ren Li, Kashif Ahmed, Michael Hart, James Ellis, and David P. Bazett-Jones

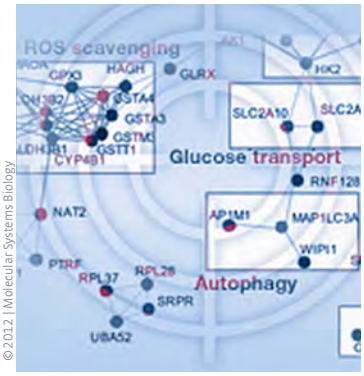
Read the paper:

www.nature.com/embor/journal/vaop/ncurrent/full/embor2012139a.html
doi: 10.1038/embor.2012.139

molecular systems biology

RESEARCH ARTICLE

Computational analysis identifies drugs to treat drug-resistant breast cancer



Researchers have used computational analysis to identify a new Achilles heel for the treatment of drug-resistant breast cancer. The results reveal that the disruption of glucose metabolism is an effective therapeutic strategy for the treatment of tumours that have acquired resistance to front-line cancer drugs such as Lapatinib.

"The growth and survival of cancer cells can often be impaired by treatment with drugs that interfere with the actions of one or more oncogenes," said Prahlad Ram, the senior author of the study and Professor at the University of Texas MD Anderson Cancer Center, Houston, Texas. "However, the clinical benefits to patients are often short lived due to acquired drug resistance. Finding alternative intervention points or so-called new addictions for cancer cells is of critical importance for designing novel therapeutic strategies against tumours. Our results reveal specific new targets for drug intervention in the metabolic pathways of cancer cells and identify existing drugs that can be used to treat drug-resistant cancer."

The glucose-deprivation response network counteracts EGFR signalling in lapatinib resistant cells
Kakajan Komurov, Jen-Te Tseng, Melissa Muller, Elena G Seviour, Tyler J Moss, Lifeng Yang, Deepak Nagrath, Prahlad T Ram

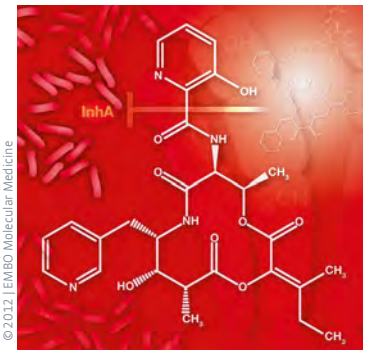
Read the paper:
doi: 10.1038/msb.2012.25

EMBO Molecular Medicine

RESEARCH ARTICLE

Scientists reveal how natural antibiotic kills tuberculosis bacterium

A natural product secreted by a soil bacterium shows promise as a new drug to treat tuberculosis. A team of scientists working in Switzerland has shown how pyridomycin, a natural antibiotic produced by the bacterium *Dactylosporangium fulvum*, works. This promising drug candidate is active against many of the drug-resistant types of the tuberculosis bacterium that no longer respond to treatment with the front-line drug isoniazid.

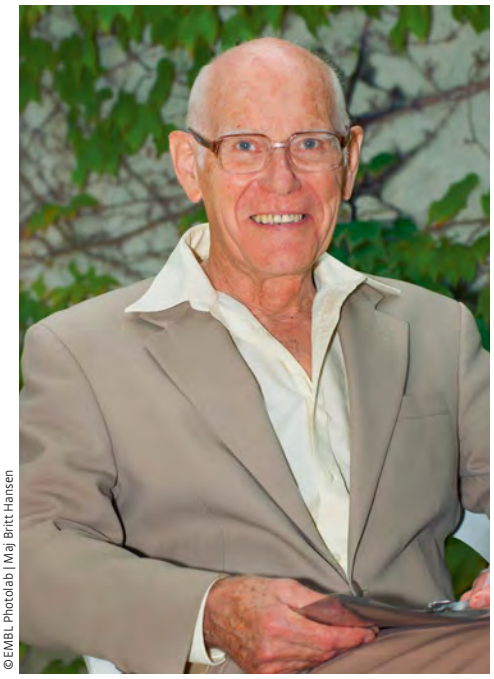


"Nature and evolution have equipped some bacteria with potent defense mechanisms to protect them against other bugs that share their habitat. Screening natural products generated by these organisms is therefore a powerful way to find possible new drugs to fight infectious diseases," said Stewart Cole, lead author of the study, EMBO Member and a professor at the École Polytechnique Fédérale de Lausanne (EPFL), Switzerland.

"Using this approach we have shown that nature's antibiotic pyridomycin is a very selective killer of *Mycobacterium tuberculosis*, the bacterium responsible for tuberculosis in humans. It is also active against mycobacteria that have developed resistance to front-line drug treatments such as isoniazid."

Towards a new tuberculosis drug: Pyridomycin – Nature's isoniazid
Ruben C Hartkoorn, Claudia Sala, João Neres, Florence Pojer, Sophie J. Magnet, Raju Mukherjee, Swapna Uplekar, Stefanie Boy-Röttger, Karl-Heinz Altmann, Stewart T. Cole

Read the paper:
doi: 10.1002/emmm.201201689



Happy Birthday Dr. Appleyard

He was the first director of EMBO and is still widely recognized for laying the foundation for what EMBO is today. On 5 October 2012, SIR RAYMOND K. APPLEYARD celebrated his ninetieth birthday – an opportunity to look back at his early years and his achievements at EMBO.

The British physicist took over the steering wheel at EMBO in 1965 – in a crucial year when the Volkswagen Foundation awarded the organization a grant of 687,000 US dollars to cover for an initial period of three years. This funding was instrumental to launch the first short- and long-term fellowships, initial practical courses and to promote the idea of scientific mobility on a European scale. The experience from a previous job helped: Appleyard initiated a similar fellowship programme at the European Atomic Energy Community (EURATOM), where he worked before coming to EMBO.

While these programmes were being launched, the Executive Secretary stimulated further political and science policy discussions and was successful in establishing a fully-fledged intergovernmental funding body for EMBO – the European Molecular Biology Conference (EMBC). By 1970, thirteen European governments decided to provide long-term support for EMBO programmes. Since that time, EMBC more than doubled its size encompassing 27 member states today.

It was mostly Appleyard's achievement that EMBO fellowships and courses and workshops have become an integral part of European molecular biology. During the difficult time of the Cold War flaring up between the West and the East, the programmes stimulated very large numbers of international collaborative projects and were used to help train many young European molecular biologists.

The first Executive Secretary resigned from his position in June 1973 and was followed by John Tooze. In the same year, the Council had decided that the EMBO secretariat should move from Brussels to Heidelberg in Germany, where the European Molecular Biology Laboratory was about to open its doors.

In recognition of his scientific achievements Appleyard became honorary doctor of the University of Ulm, Germany, and, in 1986, he received a knighthood of the British Empire.

John Gurdon talks at the recent EMBO|EMBL Symposium "Germline Immortality through Totipotency"

John Gurdon and Shinya Yamanaka awarded Nobel Prize

SIR JOHN GURDON of the Gurdon Institute, Cambridge, United Kingdom, and SHINYA YAMANAKA who works at Kyoto University, Japan, and the Gladstone Institutes in the United States have been awarded the 2012 Nobel Prize for Medicine or Physiology.

The prize acknowledges research that has revealed how mature cells can be reprogrammed to become pluripotent. The findings of both scientists are the foundation for much of the research that is underway in the field of regenerative medicine.

Gurdon was the first scientist to clone an animal, a frog, in the laboratory. In 1962, he replaced the immature cell nucleus in an egg cell of a frog with the nucleus taken from a mature cell from the frog intestine. The DNA of the mature cell contained all the information needed for the modified cell to develop into an adult frog.

More than 40 years later, Yamanaka discovered how intact mature cells in mice could be reprogrammed into stem cells. The introduction of genes that encoded for four transcription factors was shown to be sufficient to reprogram the cells into stem cells that are capable of developing into all types of cells in the body.

Gurdon visited Heidelberg shortly after the Nobel Prize announcement to give one of the Keynote lectures at the EMBO|EMBL Symposium "Germline Immortality through Totipotency" on October 13. In his talk, Gurdon discussed the phenomenon of resistance, whereby the differentiated state of a cell makes its nucleus resistant to the reprogramming activities of an oocyte. Reprogramming oocytes is now routinely possible but in many cases it does not take place at high efficiency due to biological constraints. "The histone variant protein macroH2A is one chromatin protein that helps to confer an inactive state of genes on the inactive X chromosome of female mammals," said Gurdon at the meeting. He went on to describe a procedure by which chromosomal proteins can be progressively removed from somatic cell nuclei to improve embryonic gene reactivation. Such a system could lead to the identification of chromosomal components that resist reprogramming by oocytes. The removal of these proteins could greatly improve the efficiency of nuclear reprogramming.

Gurdon is a Member of EMBO since 1972 and Yamanaka is an EMBO Associate Member since 2010.

Practical Courses

Metabolomics bioinformatics for life scientists
UK-Hinxton, 25 February–1 March

High-throughput RNAi and data analysis
DE-Heidelberg, 3–8 March

Postgenomic phylogenetics
IT-Erice, 10–17 March

Imaging infection and immunity
ZA-Pretoria, 20–30 March

Advanced optical microscopy
UK-Plymouth, 3–13 April

Analysis of small non-coding RNAs: From discovery to function
DE-Heidelberg, 6–12 April

Phosphoproteomics
DK-Odense, 14–19 April

Metagenomics: From the bench to data analysis
DE-Heidelberg, 14–20 April

Computational structural biology: From data to structure to function
DE-Hamburg, 15–19 April

Small angle neutron and X-ray scattering from proteins in solution
FR-Grenoble, 6–10 May

Super-resolution and single molecule microscopies in living cells
FR-Montpellier, 15–19 May

High-throughput protein production and crystallization
UK-Harwell, 15–23 May

Exploiting anomalous scattering in macromolecular structure determination
FR-Grenoble, 3–7 June

Electron microscopy and stereology in cell biology
DE-Heidelberg, 16–26 June

Single-cell gene expression analysis
DE-Heidelberg, 29 June–5 July

Developmental neurobiology: From worms to mammals
UK-London, 30 June–13 July

Marine animal models in evo-devo
SE-Fiskebäckskil, 1–12 July

Intravital microscopy, flow cytometry and cell sorting
DE-Berlin, 8–12 July

Multi-level modelling of morphogenesis
UK-Norwich, 14–26 July

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

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

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

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

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

and more!

Workshops

Dr Jekyll and Mr Hyde: Macrophages in inflammation and immunity
FR-Marseille, 17–19 January

Cycling to death
AT-Obergurgl, 23–27 January

The Planctomycetes-Verrucomicrobia-Chlamydiae superphylum: Exceptions to the bacterial definition?
DE-Heidelberg, 28 February–2 March

Physical biology of cancer
IT-Candiolo, 7–10 March

Glycoproteins: From structure to disease
ES-Palma de Mallorca, 24–26 April

Membrane shaping and remodelling by proteins
CN-Shanxi, 16–19 May

Liver and pancreas development, function and disease
GR-Sounion, 26–30 May

RUNX transcription factors in development and disease
DE-Wilsede, 9–12 June

Oocyte maturation and fertilization: Lessons from canonical and emerging models
FR-Banyuls-sur-mer, 12–15 June

Chromosome segregation and aneuploidy
NL-Breukelen, 22–26 June

The molecular life of diatoms
FR-Paris, 24–28 June

Integrating omic approaches to host–pathogen interactions
UK-Liverpool, 25–27 June

Morphogen gradients
UK-Oxford, 26–29 June

AIDS-related mycoses
ZA-Cape Town, 3–5 July

Plant viruses: Green viruses, from gene to landscape
FR-Hyères, 7–11 September

Drosophila cell division cycle
UK-Totnes, 12–16 September

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

AAA+ proteins: From mechanisms and disease to targets
DE-Neuss, 16–19 September

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

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

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

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

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

Conferences

Protein transport systems: From structure to function of translocation machines
HR-Dubrovnik, 13–17 April

Eukaryotic RNA turnover: From structural insights to diseases
FR-Strasbourg, 21–24 April

Spatial 2013: From spatial signalling to sensing spatiality
IL-Dead Sea, 24–28 April

Autophagy: Molecular mechanism, physiology and pathology
NO-Hurtigruten, 5–9 May

Chromatin and epigenetics
DE-Heidelberg, 8–12 May

Allosteric interactions and biological regulation
FR-Paris, 14–17 May

The biology of molecular chaperones: From molecules, organelles and cells to misfolding diseases
IT-Santa Margherita di Pula, 17–22 May

Fission yeast: Pombe 2013
UK-London, 24–29 June

Europhosphatases: Protein phosphatases in health and disease
IL-Rehovot, 7–12 July

Molecular and population biology of mosquitoes and other disease vectors: From basic vector biology to disease control
GR-Kolymbari, 15–19 July

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

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

Aquatic microbial ecology: SAME13
IT-Stresa, 8–13 September

Meiosis
DE-Radebeul, 14–19 September

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

Ubiquitin and ubiquitin-like proteins: From structure to function
IT-Lucca, 1–5 October

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

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

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

Funding for plenary lectures

EMBO supports plenary lectures given by EMBO Members at major international scientific meetings

EMBO Plenary Lectures deadlines
1 March, 1 June, 1 September, 1 December

ESF | EMBO Symposia

Bacterial networks (BacNet13)
PL-Pułtusk, 16–21 March

Molecular bioenergetics of cyanobacteria: Shaping the environment
PL-Pułtusk, 15–20 April

Molecular perspectives on protein–protein interactions
PL-Pułtusk, 25–30 May

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

EMBO | FEBS Lecture Courses

Biomembranes: Molecular architecture, dynamics and function
FR-Cargèse, 10–20 June

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

EMBO | EMBL Symposia

New model systems for linking evolution and ecology
DE-Heidelberg, 1–4 May

Cardiac biology: From development to regenerative medicine
DE-Heidelberg, 7–10 June

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

Other EMBO events

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

EMBO Members Meeting 2013
DE-Heidelberg, 23–25 October

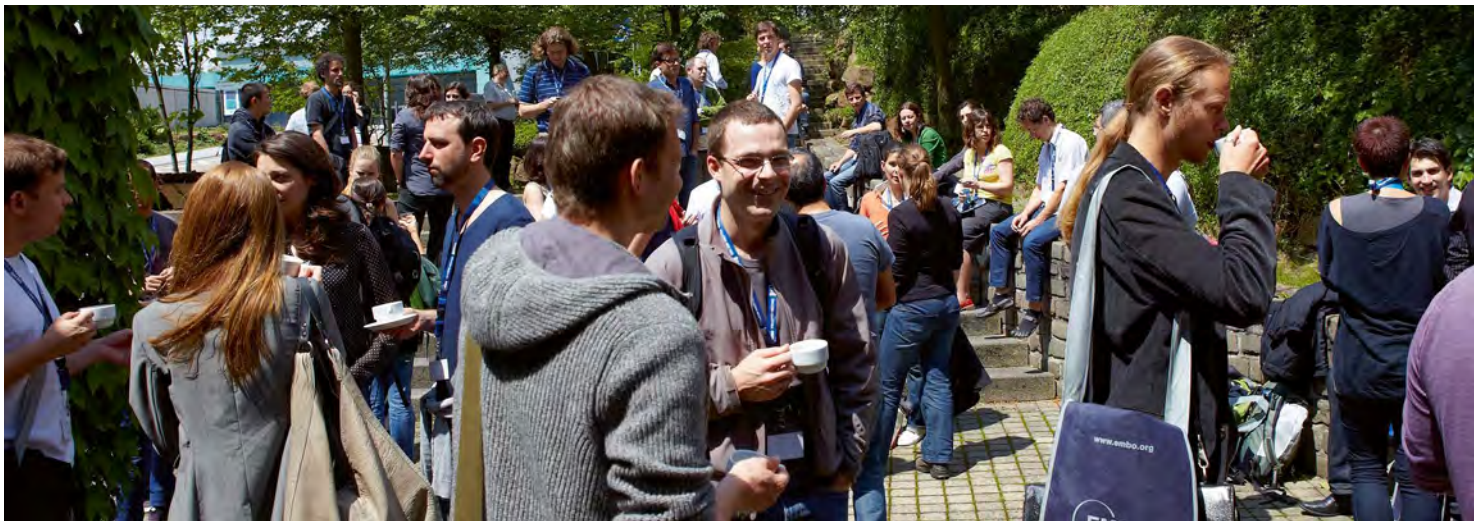
14th EMBO | EMBL Science and Society Conference
Public and private health: Genomics, medicine and society
DE-Heidelberg, 7–8 November

For further information, please go to EMBO Courses & Workshops
www.embo.org/programmes/courses-workshops/

Organizers
Apply now for 2014 funding
Bi-annual deadlines
1 March, 1 August

EMBO Fellows' Meeting

Informative, helpful and simply fun – this is how present and past EMBO LONG-TERM FELLOWS judged the annual get-together that took place last June. Ninety postdocs accepted the invitation to spend four days in Heidelberg exchanging ideas, discussing science and enjoying the social programme. Half of the attendees gave a short talk about their current projects, the other half presented posters. The meeting included a science communication session, which covered topics such as what language to use in communicating science to non-specialists, how to pitch a topic and how to spark enthusiasm with the listeners.



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Four EMBO Fellows give their feedback on:

What was the EMBO Fellowship contribution so far to your career?

What is the role of networking? And what can be done better?

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Natascha Bushati
EMBO Fellow 2010–2011

The community aspect of the fellowship is a big plus. Via the meetings and the FellowsNet you regularly get information about the positions available or you can post your own jobs. After my postdoc time in James Briscoe's lab in the UK I would like to move on to scientific editing. I'm convinced that the fellowship will increase my job chances. The pension plan makes it exceptional too. I started paying into the scheme as soon as it was introduced.

Jens H. Fritzenwanker
EMBO Fellow 2008–2010

The fellowship gave me leeway and the flexibility to decide what I wanted to focus on during my postdoc. It enabled me to spend two years at the University of Chicago in the United States. As an EMBO fellow you enjoy a high degree of independence in the lab. During my time in the US the fellows' meetings and the FellowsNet helped me to get in touch with other postdocs and discuss topics specific to the career phase I was in.

Siva Jeganathan
EMBO Fellow 2010–2012

The fellowship from EMBO gave me independence as a postdoc. I managed to find a position in a great lab run by Andrea Musacchio at the Max-Planck-Institute in Dortmund, Germany. The interviews during the selection process make the grant competitive and therefore prestigious. The portal FellowsNet is useful as it makes you feel part of the network. The same is true for the fellows' meeting, it helps strengthen contacts with other fellows. I also benefited from the Global Activities Programme run by EMBO. Via a workshop in Barcelona in 2010 I learnt much about science in India. I'll also keep an eye on this programme in the future.

Matheshwaran Saravanan
EMBO Fellow 2009–2011

It feels great to get one of the best research fellowships in the world. The fellowship gave me financial security and flexibility to choose my own project. An additional plus was the participation in the Lab Management Course for postdocs. As a recognized seal of quality the grant increases my chances for a good position in Europe, although I would like to go back to India after my time at EMBL. Things are getting better in India. Generally, I think that two years are not enough for a fellowship as you can hardly complete a project within such a short timeframe.

Young Scientists' Forum 2012 held in Istanbul

© Ertuğrul Kılıç

Eleven Turkish EMBO Installation Grantees spoke at the fifth EMBO Young Scientists' Forum hosted by Ertuğrul Kılıç at Yeditepe University in Istanbul last June. More than four hundred students and postdocs registered to hear about the grantees' research as well as talks from nine EMBO Young Investigators and a keynote lecture from EMBO Member, Mehmet Özturk. The final day of the three-day conference offered workshops in scientific presentations and other career-related skills.

Earlier this year, Mehmet Özturk and four Turkish EMBO Installation Grantees also joined forces to set up the Turkish Molecular Biology Association (see info box).

The Young Scientists' Forum is organized annually since 2007 with the venue rotating through the five countries that participate in EMBO Installation Grants: Czech Republic, Estonia, Poland, Portugal and Turkey. It provides Ph.D. students and postdocs with the opportunity to interact with Europe's most promising young group leaders – members of the EMBO Young Investigator Programme.

INFO BOX | TURKISH MOLECULAR BIOLOGY ASSOCIATION

"We are concerned about the relatively low contribution of Turkish molecular biologists to global scientific efforts," said Uygar Tazebay from Bilkent University in Ankara, President of the Turkish Molecular Biology Association. The institution was established earlier this year by a group of scientists including four EMBO Installation Grantees and one EMBO Member. They believe that the existing potential of Turkish scientists and molecular research institutes is strong enough to be more effective globally. To achieve this, the founding members focus on three issues:

1 Finding a common voice to communicate their suggestions for better quality national scientific output with global impact to policy makers, grant agencies and other science institutes in Turkey.

2 Regularly organizing meetings to present unpublished papers and discuss research ideas. One of the immediate aims is to establish a joint forum of interaction for all molecular biologists working in Turkey.

3 Finding common ground with other molecular biology organizations, associations and societies to minimize the disadvantages of doing molecular research in a peripheral country.

The **Turkish Molecular Biology Association** organizes its first conference from **23–24 November** at **Boğaziçi University Campus** in Istanbul. For more information visit **www.molbiyokon2012.org**

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The 2012 FEBS | EMBO Women in Science Award

The 2012 FEBS | EMBO Women in Science Award of 10,000 euros was presented to Susan Gasser on 7 September at the 37th FEBS Congress in Sevilla, Spain. "She clearly represents a role model for female scientists in Europe and beyond," said laudator Erich Nigg, Director of Biozentrum, University of Basel. The award winner held a plenary lecture on *The formation and sequestration of heterochromatin during development* at the congress.

EMBO Poster Prize winners

Congratulations to the following winners of competitions held at recent events

Caroline Medioni
Institute of Biology Valrose, Nice, France

Drosophila* ZBP1 controls axon growth and branching by regulating profilin mRNA *in vivo
Presented at
The EMBO Meeting 2012
Nice, France
22–25 September 2012

Anja Zeigerer
Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany

Multi-scale analysis of endosome biogenesis, hepatocellular polarity and metabolism in mouse liver
Presented at
The EMBO Meeting 2012
Nice, France
22–25 September 2012

Daniel Ibrahim
Berlin-Brandenburg Center for Regenerative Therapies, Germany

Functional characterisation of transcription factor mutations using ChIP-seq
Presented at
The EMBO Meeting 2012
Nice, France
22–25 September 2012

Elisa Dultz
University of California, Berkeley, USA

Global chromatin reorganization in response to changes in gene expression programs
Presented at
The EMBO Meeting 2012
Nice, France
22–25 September 2012

Sara Oliveira
Chronic Diseases Research Center, Universidade Nova de Lisboa, Portugal

Carbon monoxide as an anti-apoptotic agent against cerebral ischemia
Presented at the 20th
Euroconference on Apoptosis
Rome, Italy
16–20 September 2012

A good read – Publications from the EMBO Community

CLIP-seq of eIF4AIII reveals transcriptome-wide mapping of the human exon junction complex

Zhen Wang (EMBO Fellow) *et al.*
Nature Structural & Molecular Biology | 21 October 2012
doi: 10.1038/nsmb.2420

A bimodular mechanism of calcium control in eukaryotes

Henning Tidow (EMBO Fellow), Poul Nissen (EMBO Member) *et al.*
Nature | 21 October 2012
doi: 10.1038/nature11539

DAXX envelops an H3.3–H4 dimer for H3.3-specific recognition

Simon J. Elsässer (EMBO Fellow) *et al.*
Nature | 17 October 2012
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The IL-22 – IL-22BP axis is regulated by the inflammasome and modulates tumorigenesis in the intestine

Nicola Gagliani (EMBO Fellow) *et al.*
Nature | 17 October 2012
doi: 10.1038/nature11535

Epistasis as the primary factor in molecular evolution

Fyodor A. Kondrashov (EMBO Young Investigator) *et al.*
Nature | 14 October 2012
doi:10.1038/nature11510

The p110d isoform of the kinase PI(3) K controls the subcellular compartmentalization of TLR4 signaling and protects from endotoxic shock

Ezra Aksoy (EMBO Fellow) , Bart Vanhaesebroeck (EMBO Member) *et al.*
Nature Immunology | 30 September 2012
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Positive modulation of a Cys-loop acetylcholine receptor by an auxiliary transmembrane subunit

Thomas Boulin, Christian Stigloher (EMBO Fellows) *et al.*
Nature Neuroscience | 26 August 2012
doi:10.1038/nn.3197

A PML – PPAR-δ pathway for fatty acid oxidation regulates hematopoietic stem cell maintenance

Arkaitz Carracedo (EMBO Fellow), Pier Paolo Pandolfi (EMBO Member) *et al.*
Nature Medicine | 19 August 2012
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Distinct contribution of stem and progenitor cells to epidermal maintenance

Cédric Blanpain (EMBO Young Investigator) *et al.*
Nature | 2 September 2012
doi:10.1038/nature11393

Structural basis for RNA duplex recognition and unwinding by the DEAD-box helicase Mss116p

Anna L. Mallam (EMBO Fellow) *et al.*
Nature | 2 September 2012
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Dopamine neurons modulate pheromone responses in *Drosophila* courtship learning

Eleftetheria Vrontou (EMBO Fellow), Barry J. Dickson (EMBO Member) *et al.*
Nature | 19 August 2012
doi:10.1038/nature11345

Scl represses cardiomyogenesis in prospective hemogenic endothelium and endocardium

Amélie Montel-Hagen (EMBO Fellow) *et al.*
Cell | 3 August 2012
doi: 10.1016/j.cell.2012.06.026

BLD10/CEP135 is a microtubule-associated protein that controls the formation of the flagellum central microtubule pair

Monica Bettencourt-Dias (EMBO Young Investigator) *et al.*
Developmental Cell | August 2012
doi: 10.1016/j.devcel.2012.06.001

Defining the mode of tumour growth by clonal analysis

Cédric Blanpain (EMBO Young Investigator) *et al.*
Nature | 1 August 2012
doi: 10.1038/nature11344

The toxin–antitoxin proteins RelBE2Spn of *Streptococcus pneumoniae:* Characterization and association to their DNA target

Manuel Espinosa (EMBO Member) *et al.*
PROTEINS: Structure, Function, and Bioinformatics | July 2012
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Chromatin organization is a major influence on regional mutation rates in human cancer cells

Ben Lehner (EMBO Young Investigator) *et al.*
Nature | 22 July 2012
doi: 10.1038/nature11273

Viral immune modulators perturb the human molecular network by common and unique strategies

Andreas Pichlmair (EMBO Fellow), Giulio Superti-Furga (EMBO Member) *et al.*
Nature | 18 July 2012
doi: 10.1038/nature11289

Tandem fluorescent protein timers for *in vivo* analysis of protein dynamics

Anton Khmelinskii (EMBO Fellow) *et al.*
Nature Biotechnology | 24 June 2012
doi: 10.1038/nbt.2281

Events

EMBO MEMBERS

EMBO Member **George Thomas** is one of the organizers of the IDIBELL Cancer Conference on ***Personalized Cancer Medicine*** that is to take place in **Barcelona** from **3–4 December 2012.** Special focus will be on epigenetics and DNA repair and metabolism and cell signalling with the latest clinical applications.

More at: **http://bocemtium.com/icc2012/index.php/icc/2012/index.html.var**

Awards of excellence

EMBO MEMBERS

Körber European Science Prize
Körber Foundation

Matthias Mann, a physicist and bioinformatician at the Max-Planck-Institute of Biochemistry in Martinsried, Germany, won the 2012 Körber European Science Prize for his ground-breaking work on the proteome, the entire complement of proteins in a living organism. The prize comes with an award of 750,000 euros. The proteomics pioneer also received the 2012 Ernst Schering Prize worth 50,000 euros and awarded by the Schering Foundation Berlin.

US National Academy of Sciences

George Coupland from the Max-Planck-Institute for Plant Breeding Research in Cologne, Germany, was elected a foreign associate of the US National Academy of Sciences this year.

Millennium Technology Prize
Technology Academy Finland

EMBO Member **Shinya Yamanaka** and Linus Torvalds are joint Grand Winners of the 2012 Millennium Technology Prize, one of the world's major technology prizes. The Japanese scientist received it in recognition of his discovery of a new method to develop induced pluripotent stem cells for medical research. The prize worth 1,2 million euros was split between the two researchers and presented by the president of the Republic of Finland last June.

Balzan Prize
International Balzan Prize Foundation

David Baulcombe of the University of Cambridge, United Kingdom, received the prize for his work on the epigenetic effects of stress on plant cells and tissue. Baulcombe says the prize of 750,000 Swiss Francs (approximately 620,000 euros) will help start a new line of epigenetic research into algae. The Italy-based International Balzan Prize Foundation annually funds research awards for scholars, scientists, and artists who it considers to have been overlooked by other prestigious awards.

Albert Lasker Basic Medical Research Award
Lasker Foundation

This year's Lasker Award for basic medical research goes to EMBO Associate Member **Ronald Vale** and his colleagues Michael Sheetz and James Spudich for discoveries concerning cytoskeletal motor proteins, machines that move cargoes within cells, contract muscles, and enable cell movements. The Lasker Awards, which carry an honorarium of 250,000 US dollars for each category, were presented at a ceremony in New York City last September.

ASBMB-Merck Award
American Society for Biochemistry and Molecular Biology / Merck

Vivek Malhotra of the Centre for Genomic Regulation in Barcelona, Spain, received the ASBMB-Merck Award for Studies on the mechanism of secretory cargo sorting and transport carrier biogenesis during conventional and unconventional protein secretion.

EMBO YOUNG INVESTIGATORS

ASCB Women in Cell Biology award
American Society of Cell Biology

Sophie Martin from the University of Lausanne, Switzerland, is the winner of the 2012 ASCB Women in Cell Biology Junior award. The prize recognizes female scientists in an early stage of their careers who make exceptional scientific contributions to cell biology, develop a strong independent research program, and exhibit the potential for continuing a high level of scientific endeavour and leadership. She will receive the award at the ASCB annual meeting in San Francisco, United States, in December 2012.

EACR Cancer Researcher Award Lecture
European Association for Cancer Research / Pezcoller Foundation

Eric So from King's College London, United Kingdom, is the winner of this award that recognizes academic excellence in the field of cancer research. He is the first recipient of this award worth 10.000 euros. He gave the Pezcoller Foundation – EACR Award Lecture at the biennial congress of EACR, which this year was held in Barcelona. The primary goal of Eric So's research is to characterize the mechanisms of transcriptional regulation that are corrupted in leukemia.

Editorial

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Appointments

EMBO MEMBER

The Gulbenkian Science Institute in Oeiras, Portugal, announced the appointment of EMBO Member **Jonathan Howard** as its new director as of 1 October 2012. He succeeds António Coutinho, who stepped down after 14 years as the institute's director. Howard, a prominent British immunologist, is also a professor at the Institute of Genetics of the University of Cologne.

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