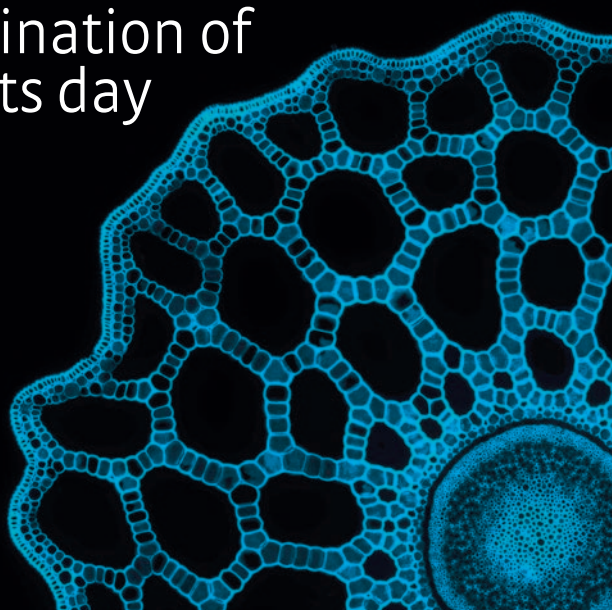


ISSUE 20 EMBO *encounters*

PAGE 12

Fascination of plants day



Maria Leptin

Inside scientific publishing

PAGE 2



PAGE 13

Ivan Dikic & Volker Dötsch

Frankfurt Institute for Molecular Life Sciences

SCIENCE & SOCIETY The 12th EMBO|EMBL Science & Society Conference took place at the EMBL Advanced Training Centre in Heidelberg on 4–5 November 2011. More than 400 attendees listened to talks from leading experts at the *Making sense of mental illness: biology, medicine and society* conference.

PAGE 3

EMBO MEMBERSHIP New EMBO Member Xin Lu talks to *EMBOencounters* about her research, practising science inside and outside China and some of the challenges facing women in science.

PAGE 5

LECTURE Paul Nurse, President of the Royal Society and Chief Executive and Director of the Francis Crick Institute, was in Heidelberg, Germany, on 7 November to give the lecture *Great Ideas in Biology*. Nurse will give the keynote lecture at *The EMBO Meeting 2012* in Nice, 22–25 September.

PAGE 15



Inside scientific publishing

Scientific publishing is undergoing profound changes. Here and in future issues of *EMBOencounters*, we would like to discuss some of the important topics in publishing, including open access, ethics, or the merits of impact factors. The first commentary looks at ways of enhancing the quality and transparency of peer review.

Most scientists have strong opinions about scientific publishing. Concerns focus on two main issues: the speed and efficiency of publishing, and the transparency and fairness of the peer review process. Inadequate reviews, lack of transparency in editorial decisions, unreasonable expectations for additional experimentation and multiple rounds of submission and review are amongst the most frequent sources of irritation. EMBO publishes four peer-reviewed journals – *The EMBO Journal*, *EMBO reports*, *Molecular Systems Biology*, and *EMBO Molecular Medicine*. The editors of the four journals have been working on finding solutions for these concerns and have implemented practical changes in the editorial process to address them (Table 1). I will comment on quality and transparency here but I encourage readers to consult other commentaries that have been written by editors of EMBO journals.^{1,2}

Quality of referees' reports. As scientists, we are both authors and referees, but we sometimes act in an inconsistent way: when reviewing a manuscript, we forget how we would like referees to analyse and comment on our own papers. Conversely, when we receive referees' reports, the smallest critical remark makes us think 'they are out to get us'.

Even if we review papers with the greatest diligence, relevant points may escape us. We may miss important insights, or fail to detect flaws. I believe referees are often concerned about whether they have made the right recommendation and most scientists like the procedure by which some journals inform the referees of their final decisions and allow them to see the other referees' reports. The EMBO journals have taken the exchange of referees' reports one step further, to a place where it has a direct effect: As soon as all reports have been received, the editor sends them, anonymously, to all three referees who then have one day to consider the others' views and decide if they need to alter their own review. This allows extreme opinions to be scrutinized at an early point, mistakes and errors to be detected, and helps the editor to get back to the author with balanced decisions. More than a third of referees respond, either criticizing the remarks of the other reviewers or acknowledging that they missed key points noted by a colleague.

Transparency of decision making. Commentators and bloggers have suggested that making referees' reports public would benefit science.^{2,3} Indeed, *The EMBO Journal* introduced such a mechanism in 2008.¹ The publication of the 'peer review process files', which includes the anonymous referees' remarks, the editorial decision letter, and referees' and authors' comments on revisions, is now implemented at the four EMBO journals. The publication of the peer review files for rejected papers is not a realistic option: very few authors would agree to having the rejection history of their papers publicly available since it might compromise review of their submissions elsewhere.

Many journals allow the reviewer to make 'confidential comments for the editor' that are not passed on to the author. The 'confidential comments' box appears to encourage referees to be secretive, and the EMBO journals have therefore eliminated it. I believe that all comments relevant to a decision should be communicated to authors but serious concerns, for example

ethical standards or data integrity, should be discussed directly with the editors. Finally, the editorial process is a dialogue. The telephone numbers of editors at EMBO are publicly available and the journals encourage authors to contact staff directly on any matters that they wish to discuss.

It is clear that the solutions discussed here do not cure all ills. However, we should acknowledge that the peer review process works, that it remains the only proven mechanism of quality control in the sciences, and that it depends on the remarkable goodwill of referees. We must look for ways to improve the process but we must not forget that it also needs our undivided support.

Maria Leptin EMBO Director

REFERENCES

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2. Pulverer B, *Nature*, **469**, 29–31 (2010).
3. Ploegh H, *Nature*, **472**, 391 (2011).

Table 1 | Concerns and some solutions for scientific publishing.

| Concern | Response: Change in editorial procedure |
|---|---|
| 1. Transparency | |
| Decisions are made behind a veil of anonymity | → 'Transparent peer review': Referee reports and editorial correspondence are published together with the paper ^{1,2} |
| Editors hide behind referees ³ | → Discontinued 'confidential comments for the editor' → Appeals process, including expert arbitration where necessary |
| 2. Quality of refereeing | |
| E.g., superficial referee reports, bias, conflict of interest | → Referees cross-comment on each others' remarks → Transparent peer review provides an incentive for referees to write constructive reports |
| 3. Time | |
| Manuscripts pass through multiple rounds of revision. Manuscripts are passed from one journal to the next which wastes the time of researchers and referees | → Manuscript transfer to other journals with review files and referee identities → Eliminated need for unnecessary re-formatting at submission |
| 4. Unreasonable requests | |
| Referees ask for too much, editors do not intervene, supplementary data proliferate | → Clear instructions to referees to review the manuscript under scrutiny and not a new phase of the project → Currently testing structured referee reports |
| 5. Scooping | |
| Paper is not accepted because a similar study is published elsewhere while the paper is under review | → Manuscripts are not considered scooped between day of submission to the times of revision and final decision: publication of similar data by competitors during this period does not prohibit acceptance of manuscripts |



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Making sense of mental illness

The 12th EMBO|EMBL Science & Society Conference took place at the Advanced Training Centre in Heidelberg on 4–5 November 2011. More than 400 attendees listened to talks from leading experts and participated in several panel discussions on the topic *Making sense of mental illness: biology, medicine and society*.

Nikolas Rose, Professor at the London School of Economics and Political Science, UK, gave the introductory lecture at the *Making sense of mental illness: biology, medicine and society* conference in which he outlined some of the biggest challenges facing the mental health community. Is there an epidemic of mental illness and should the emphasis for interventions be on the brain or on the social environment of the individual? Can any diagnostic manual satisfy the needs of the professional mental health community? Furthermore, how useful are biomarkers for the diagnosis of mental health and who should judge the benefits of psychiatry?

Subsequent talks looked at the extent and societal impact of mental illness from the perspectives of different research disciplines, including the clinical and social sciences. Despite the huge impact of mental illness on society, the consensus amongst the invited speakers was that there was no clear evidence of an epidemic. However, the impact on individuals, families and society is staggering.

Hans-Ulrich Wittchen of the Technical University of Dresden, Germany, was the lead researcher on a recently published three-year study about the extent of mental illness in Europe. Every year, mental disorders affect more than 38% of the European population. In 2010, the healthcare costs for mental disorders in Europe were Euro 674 000 million. *Mathias Berger*

from the University Medical Centre Freiburg, Germany, noted that 4 million people in Germany alone suffer from depression, one million chronically.

In his talk on the second day of the meeting, Steven Rose, emeritus professor at the Open University, UK, called for caution in the way we approach the treatment of mental illness. “We should remain aware that we are both biological realities and social constructs. Minds do not reduce to brains and a holistic approach to mental illness should remain in sight.”

What is being done to develop new drugs and treatments? *Luca Santarelli* of F. Hoffmann-La Roche offered a perspective from the private sector. He acknowledged that the commitment to drug development for mental health is wavering in the pharmaceutical industry but Roche remains active. Roche is currently working on a monoclonal antibody treatment for Alzheimer’s disease that is in phase II clinical trials. The company is also looking at new ways to develop treatments for some of the different disorders that autism comprises. *Sidney Kennedy*, professor of psychiatry at the University of Toronto, described deep brain stimulation interventions that are currently underway for intractable depression. Randomized control trials are in progress, which involve placing electrodes directly into different regions of the human brain. These clinical trials should provide an answer as to whether these types of interventions can be used more widely.

Mathias Berger from the University Medical Centre Freiburg, Germany, discussed psychotherapeutic approaches for the care of the mentally ill. Urging caution due to the lack of randomized controlled trials for psychotherapeutic interventions, he highlighted some new “talking-focused” approaches for therapists and patients that may provide interventions for mental disorders.

Donna Franceschild, TV writer and dramatist from the UK, gave a moving personal account of what it is like to have bipolar disorder. Franceschild said she often felt invincible and has had some amazing life experiences, but somewhere along the way she could not see a future for herself. Stated Franceschild, “When was I depressive? When was I manic? These are abstract concepts outside the narrative of my life. The experience of bipolar disorder is from within.” The Making Sense of Mental Illness conference helped focus attention on some of the scientific approaches that may in the future help to treat these debilitating mental disorders that are experienced from within.

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15 February
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1 March
EMBO Courses & Workshops

1 March
EMBO Plenary Lectures

1 April
EMBO Young Investigators

15 April
EMBO Installation Grants

EMBO Members

elected in 2011

46 life scientists elected to EMBO membership

Forty-six life scientists from Europe and around the world were elected to EMBO ranks in 2011. They come from 14 different countries. In 2011 EMBO acknowledged 43 European scientists as EMBO Members and three scientists from the USA as Associate Members. The new members include 11 female scientists and the first EMBO Member from Estonia. In total, EMBO membership now comprises more than 1,500 life scientists.

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IT University of Rome
Tor Vergata

Yohanns Bellaïche
BE Catholic University of
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FR Institut Curie, Paris

Nica Borgese
IT CNR Institute of Neuroscience,
University of Catanzaro, Milan

Alexander Borst
DE Max Planck Institute for
Neurobiology, Martinsried

Catherine Dargemont
FR Université Paris Diderot,
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FR Institut de Génétique
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Heidelberg

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DE University of Würzburg



FOCUS ON

Xin Lu

New EMBO Member **XIN LU** talks to *EMBOencounters* about her research, the differences between practising science in China and the UK and some of the challenges facing women in science.

X*in Lu* – discoverer of the ASPP family of proteins and director of the Oxford Branch of the Ludwig Institute for Cancer Research (LICR) – is no stranger to adversity. When she arrived in England in 1986 as a visiting scientist from China, she spoke very little English.

What made it harder, she explains, was that China had not yet opened its borders to the rest of the world, so all the brand names in shops were unfamiliar. “Sometimes I would stand in a pharmacy for an hour trying to decipher which of the many bottles and tubes in front of me was the toothpaste.”

Language was not a problem for long. Over the next eight years, Xin completed her PhD and

postdoctoral research in the biochemistry department at Dundee University, and was poised and ready to lead her own independent research group. In 2000, she was made a Member of the LICR, an international cancer research institute with branches in seven countries. In 2004 she became director of the London Branch and, in 2008, she opened the Oxford Branch of the LICR.

Xin Lu is renowned for her discovery of the apoptosis-stimulating protein of p53 or ASPP family of proteins and their role as molecular switches of cell fate. Xin’s ongoing work is to elucidate the biological importance and molecular mechanisms of cell polarity in tumour suppression and metastasis; and to identify molecular switches that survey and integrate signals from the cell surface to transcription and cell fate determination.

“Our goal is to identify therapeutic targets in the ASPP pathway not only for cancer but for other diseases as well,” she says.

In recognition of her excellence in research, Xin Lu was elected in November 2011 to EMBO membership. “It is a privilege and an honour,” she says. “It will enlarge my community and take my research to a different level.”

Selected on merit Excellence is the watchword for Xin’s long career. She was one of the first

generation of high school students in China to be accepted into university on the basis of merit. “Between 1973 and 1976, after the Cultural Revolution, people were nominated from farms and factories for university. Fortunately, when I finished high school in 1978, these regulations had just come to end. I took an exam and was accepted.”

If you want to be a leading researcher, you have to learn new techniques, and to do that, you have to move around. Find the best place, expose yourself to the best possible techniques.

On finishing her bachelor’s degree in 1982, Xin went on to study for a master’s degree at Beijing’s prestigious Cancer Institute of the Chinese Academy of Medical Sciences and Peking Union Medical School. She looks back on this time as the start of her research career.

While China is now a hub for innovative scientific research, in the mid-Eighties it was essential for scientists to travel to advance their research knowledge. Xin applied for and was awarded a research training fellowship from the International Agency for Research on Cancer from the World Health Organization (WHO). She worked as a PhD student in the Clare Hall laboratories of the former Imperial Cancer Research Fund, learning English at the same time.

Reflecting on her career, Xin says that being mobile was crucial. “If you want to be a leading researcher, you have to learn new techniques, and to do that, you have to move around. Find the best place, expose yourself to the best possible techniques.”

China a gender forerunner If China matches developed countries in terms of scientific excellence, it is a leader in gender balance. “In China, I never had any sense of difference between men and women,” says Xin. “My mother was a professor, the director at the Cancer Institute of the Chinese Academy of Medical Sciences was a woman and 50 percent of the principal investigators were women. Men did as much childcare and housework as women.”

While Xin says she has been fortunate to receive strong support from LICR throughout her independent research career, she does recognize that a society that doesn’t provide adequate childcare makes hurdles for women in pursuing their career goals.

“It’s not up to women only to fix this, but the whole of society. However, while the changes are happening, female scientists must take up their roles and pursue their research with confidence. Lack of confidence is a real obstacle to success.”

EMBO Young Investigators

selected in 2011

Ivan Ahel

DNA damage response
UK Paterson Institute for
Cancer Research,
Manchester

Richard Benton

Olfactory evolution
CH University of Lausanne

Rut Carballido-Lopez

Bacterial cytoskeleton and
morphogenesis
FR French National Institute for
Agricultural Research (INRA)
Jouy-en-Josas

Johan Elf

Intracellular biophysics
SE Uppsala University

Niko Geldner

Endodermal polarity and
differentiation
CH University of Lausanne

Anja Groth

Regulation of chromatin and
histone dynamics
DK Biotech Research and
Innovation Centre (BRIC)
Copenhagen

Sophie Jarriault

Cell plasticity
FR Institute of Genetics and
Molecular and Cellular Biology
(IGBMC), Illkirch

Sebastian Jessberger

Adult neurogenesis
CH ETH Zurich

Esben Lorentzen

Structural basis for
intraflagellar transport
DE Max Planck Institute of
Biochemistry,
Martinsried

Tom Lüdde

Inflammatory signalling in
liver disease
DE University Hospital Aachen

Irene Miguel-Aliaga

Crosstalk between the
brain and gut
UK University of Cambridge

Ellen Nollen

Aging-related protein
aggregation and toxicity
NL University of Groningen

Mark Petronczki

Cell division and aneuploidy
UK Cancer Research UK
London Research Institute

Benjamin Prud'homme

Development and evolution of
morphology and behaviour
FR Developmental Biology Institute of
Marseilles-Luminy (IBDML)

Markus Ralser

Systems biology of
metabolic regulation
UK University of Cambridge

Akhilesh Reddy

Circadian rhythms
UK University of Cambridge

Frank Schnorrer

Muscle formation and function
DE Max Planck Institute of
Biochemistry, Martinsried

Maya Schuldiner

Endoplasmic reticulum function
IL Weizmann Institute, Rehovot

Barry Thompson

Tissue growth and form in
Drosophila
UK Cancer Research UK
London Research Institute

Maria-Elena Torres-Padilla

Epigenetic dynamics of cell potency
FR Institute of Genetics and Molecular
and Cellular Biology (IGBMC)
Illkirch

Marc Veldhoen

Epithelial immunity and
metabolism
UK Babraham Institute
Cambridge

Helen Walden

Specificity and regulation of
E3 ubiquitin ligases
UK Cancer Research UK
London Research Institute

EMBO Installation Grantees

selected in 2011

Tolga Emre

Gene regulatory networks in cancer
TR Bogazici University, Istanbul
Moving from:
US National Cancer Institute,
Bethesda

Ebru Erbay

Mechanism and therapy of
cardiometabolic syndrome
TR Bilkent University, Ankara
Moving from:
US Harvard School of Public Health,
Boston, US

Nurhan Özlü

Cell surface changes during
the cell cycle
TR Koç University, Istanbul
Moving from:
US Harvard Medical School, Boston

Kvido Stříšovský

Rhomboid proteases
CZ Institute of Organic Chemistry and
Biochemistry AS CR, Prague
Moving from:
UK MRC Laboratory of Molecular
Biology, Cambridge

Tambet Teesalu

Tumor penetrating peptides
EE University of Tartu
Moving from:
US Sanford-Burnham Medical
Research Institute,
Santa Barbara

Bartosz Wilczyński

Computational modeling of
gene expression
PL Warsaw University
Moving from:
DE European Molecular Biology
Laboratory, Heidelberg, DE

Dorota Wloga

Cilia assembly and function
PL Nencki Institute, Warsaw
Moving from:
US University of Georgia, Athens

Deadlines
Research Fellowships in Singapore**New fellowship opportunities for Singapore**

As part of a recent cooperation agreement between the government of Singapore and EMBO, fellowships are available to support the careers of researchers who wish to work in Singapore or Europe.

Applications are invited for short-term fellowships (applications open throughout the year) and three-year long-term fellowships (twice yearly application deadlines: 15 February and 15 August).

Further details are available at

www.embo.org/programmes/fellowships.html

Next issue of *EMBO encounters*

The next *EMBO encounters* issue – **Summer 2012** – will be dispatched in **July 2012**. Please send your suggestions, contributions and news to communications@embo.org by **4 May 2012**.

Managing Editor Barry Whyte

Editors Yvonne Kaul, Charlotte Otter

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Upcoming deadlines

15 FEBRUARY
EMBO LONG-TERM FELLOWSHIPS

1 MARCH
EMBO COURSES & WORKSHOPS

1 MARCH
EMBO PLENARY LECTURES

1 APRIL
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15 APRIL
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IN PERSON

MEET THE SCIENTISTS



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In late 2011, EMBO selected 22 researchers to join the EMBO Young Investigator Programme and seven scientists as recipients of EMBO Installation Grants (see page 6). EMBOencounters interviewed some of these talented young scientists about what the benefits of funding mean for their research.

Benjamin Prud'homme

Developmental Biology Institute of Marseilles-Luminy

2011 EMBO Young Investigator

Benjamin's lab is interested in understanding the evolution and development of morphology and behaviour.

What does being selected as an EMBO Young Investigator mean for your research?

It is a very pleasant recognition of the work we're doing by a prestigious organization. Being part of the EMBO Young Investigator community is a fantastic opportunity to expand our scientific network. Our research bridges multiple disciplines, relying on different concepts and technical skills. Interacting with other labs is absolutely key. The Young Investigator community means we can meet and interact with fellow biologists to broaden our horizons.

Nurhan Özlü

Koç University, Istanbul

2011 EMBO Installation Grantee

Nurhan's research focuses on the regulation of cell division. Having received an EMBO Installation Grant, she left Harvard Medical School to set up her lab at Koç University, Istanbul.

How do you feel about this opportunity to take your research back to Turkey?

Moving back to Turkey and starting a new laboratory are significant challenges and require a lot of effort. Here at Koç University there is a very stimulating scientific environment and our department attracts highly motivated and hard-working students. As an independent investigator, I find receiving funds to establish a strong research programme in Turkey very rewarding. Living in Istanbul is fun and there is a rich cultural life here.

For an in-depth interview with Nurhan, listen to the EMBO podcast: www.embo.org/rss/podcast.xml (9:23 minutes)

Esben Lorentzen

Max Planck Institute of Biochemistry, Martinsried

2011 EMBO Young Investigator

Esben's group is trying to understand the detailed mechanisms of ciliary transport by studying the protein complexes involved in this process.

What does being selected as an EMBO Young Investigator mean for your group?

My group has good reason to be proud as the selection was based on the science they have done over the past two and a half years. Additionally, the extra funding provided by EMBO for students to go to conferences, workshops and do exchange visits with other groups to learn new techniques is very valuable.

Markus Ralsler

University of Cambridge

2011 EMBO Young Investigator

Markus's group investigates the regulatory function of the metabolic network and how metabolic intermediates are implicated in the control of biological systems.

What does being selected as an EMBO Young Investigator mean for your group?

Science is about communication, but most programmes for young principal investigators do not take this into account. Being part of the EMBO Young Investigator Programme network means we are better connected, which means broader access to technology and an exciting exchange of ideas.

Anja Groth

Biotech Research and Innovation Centre, Copenhagen

2011 EMBO Young Investigator

Anja's lab aims to identify and characterize novel mechanisms involved in chromatin regulation and understand the implications for epigenetic and genetic stability.

What does being selected as an EMBO Young Investigator mean for you?

The Young Investigator Programme is important because it gives visibility to our research and the lab. This is always good because it can result in invitations to speak at international meetings. I hope this visibility will inspire highly motivated and driven young researchers to apply for PhD and postdoctoral positions in the lab.

Practical Courses

Single-cell gene expression analysis
DE-Heidelberg, 19–23 March

Advanced optical microscopy
UK-Plymouth, 21–31 March

**Computational structural biology:
From data to structure to function**
UK-Hinxton, 16–20 April

Mass spectrometry and proteomics
DK-Odense, 18–25 April

**Analysis of small non-coding RNAs:
From massively parallel sequencing to *in situ* hybridization, from discovery to validation**
DE-Heidelberg, 21–27 April

Computational molecular evolution
GR-Heraklion, 29 April–10 May

Bioinformatics and comparative genomes analyses
IT-Napoli, 7–19 May

Biomolecular simulation
FR-Paris, 18–24 May

The structural characterization of macromolecular complexes
FR-Grenoble, 4–9 June

Plant bioinformatics: Going -omics
UK-Hinxton, 11–15 June

Electron microscopy and stereology in cell biology
CZ-Ceské Budějovice, 12–22 June

Electron tomography in life science
NL-Leiden, 18–23 June

Plant–microbe interactions
UK-Norwich, 18–29 June

The application of transient kinetics methods to biological macromolecules
UK-Canterbury, 24–30 June

3D developmental imaging
PT-Oeiras, 29 June–7 July

Molecular genetics with fission yeast
FR-Paris, 2–13 July

Correlative light electron microscopy
UK-Bristol, 15–21 July

Multidimensional NMR in structural biology
DE-Göttingen, 12–17 August

Lipid mass spectrometry and lipidomics
UK-Swansea, 19–24 August

Cryo-electron microscopy and 3D image processing
DE-Heidelberg, 26 August–2 September

Microscopy, modelling and biophysical methods
DE-Heidelberg, 27 August–8 September

Ubiquitin and SUMO
IT-Alghero, 1–8 September

Computational analysis of protein–protein interactions for bench biologists
DE-Berlin, 3–8 September

Protein expression, purification, characterization and crystallization (PEPC8)
DE-Hamburg, 3–11 September

and more!

Workshops

Programmed cell death in model organisms
IL-Ein Gedi, 19–23 February

Microbial sulfur metabolism
NL-Noordwijkerhout, 15–18 April

Antigen presentation and processing
NL-Amsterdam, 24–27 April

Genetic stability and change: Genome maintenance mechanisms in plants
FR-Roscoff, 2–5 May

Evolution in the genome era
IT-Venice, 7–9 May

Recombination mechanisms and genome instability
ES-Jerez de la Frontera, 21–25 May

Advances in protein–protein interaction analysis and modulation
FR-Roscoff, 6–9 June

Cortical interneurons in health and disease
ES-Costa d'en Blanes (Mallorca), 24–27 June

Single cell physiology
FR-Paris, 23–28 July

Cell biology of early mouse development
UK-Cambridge, 9–12 September

Reconstructing the essential bacterial cell cycle machinery
ES-Real Sitio de San Ildefonso (Segovia), 16–19 September

The reciprocal interactions of signalling pathways and non-coding RNA
CH-Ascona, 16–19 September

Structure-specific nucleases in DNA replication and repair
FR-Hyères-les-Palmiers, 16–20 September

Structure, function and regulation of centromeres and kinetochores
ES-Barcelona, 1–4 October

EMBO Molecular Medicine Workshop:
Molecular medicine of sphingolipids
IL-Kfar Blum, 16–21 October

Organizers
Apply now for 2013 funding
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1 March, 1 August

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

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

Conferences

Visualizing biological data (VizBi)
DE-Heidelberg, 6–8 March

Subversion of host cellular organization and functions by pathogens
CH-Villars-sur-Ollon, 6–10 May

Microtubules: Structure, regulation and functions
DE-Heidelberg, 23–26 May

Cellular signalling and molecular medicine
HR-Cavtat (Dubrovnik), 25–29 May

Plant development and environmental interactions
IT-Matera, 27–30 May

***C. elegans* neurobiology**
DE-Heidelberg, 14–17 June

Gene transcription in yeast: From mechanisms to gene regulatory networks
ES-Girona, 16–21 June

The molecular and developmental biology of *Drosophila*
GR-Kolymbari, 24–30 June

30 years of Wnt signalling
NL-Egmond aan Zee, 27 June–1 July

Viruses of microbes: From exploration to applications in the -omics era
BE-Brussels, 16–20 July

The molecular and cellular basis of regeneration and tissue repair
UK-Oxford, 2–6 September

Physics of cells: From soft to living matter (PhysCell)
FR-Hyères-les-Palmiers, 5–9 September

Morphogenesis and dynamics of multicellular systems
DE-Heidelberg, 7–9 September

Microbial Genomes: Tuberculosis
FR-Paris, 11–15 September

Chemical biology
DE-Heidelberg, 26–29 September

Telomeres and the DNA damage response
FR-L'Isle sur la Sorgue, 2–6 October

Catalytic mechanisms by biological systems: Combining computational and experimental approaches
NL-Groningen, 8–10 October

The physiology of the ER: Function and dysfunction
ES-Caldes de Malavella, 15–19 October

Experimental approaches to evolution and ecology using yeast
DE-Heidelberg, 17–21 October

From functional genomics to systems biology
DE-Heidelberg, 17–20 November

Critical assessment for protein structure prediction (CASP10)
IT-Sabaudia, 9–12 December

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

ESF | EMBO Symposia

Cell polarity and membrane traffic
PL-Pułtusk, 31 March–5 April

Systems biology of *Drosophila* development
PL-Pułtusk, 21–26 May

Antiviral RNAi: From molecular biology towards applications
PL-Pułtusk, 11–16 June

Molecular biology and innovative therapies in sarcomas
PL-Pułtusk, 29 September–4 October

EMBO | EMBL Symposia

New perspectives on immunity to infection
DE-Heidelberg, 19–22 May

Diabetes and obesity
DE-Heidelberg, 13–16 September

Quality control: From molecules to organelles
DE-Heidelberg, 19–22 September

The complex life of mRNA
DE-Heidelberg, 7–10 October

Germline: Immortality through totipotency
DE-Heidelberg, 13–16 October

EMBO | FEBS Lecture Courses

Mesoscopic origins of cell behaviors during tissue morphogenesis: Biochemical circuits and mechanics
FR-Cargèse, 30 April–5 May

Mitochondria in life, death and disease
GR-Crete, 9–13 May

Novel biophysical approaches in the investigation of the cytoskeleton
HU-Pécs, 3–7 November

Global Exchange Lecture Courses

Amoebiasis: Exploring the biology and the pathogenesis of *Entamoeba*
IN-Khajuraho, 4–7 March

Introduction to synthetic biology
AR-Buenos Aires, 16–22 April

Structural and biophysical methods for biological macromolecules in solution
IN-Hyderabad, 29 November–6 December

Other Events

The EMBO Meeting 2012
FR-Nice, 22–25 September

EMBO Members' Meeting
DE-Heidelberg, 24–26 October

EMBL | EMBO
Science & Society Conference
Biodiversity in the balance: Causes and consequences
DE-Heidelberg, 9–10 November

Research articles

Human long non-coding RNAs promote pluripotency and neuronal differentiation by association with chromatin modifiers and transcription factors

Ng SY, Rory Johnson R and Stanton LW

An array-based approach identifies hESC-specific novel long non-coding RNAs (lncRNAs) that are essential for the maintenance of pluripotency and indispensable for neuronal differentiation. A number of these lncRNAs directly interact with the pluripotency regulators SOX2 and PRC2.

The EMBO Journal | doi:10.1038/emboj.2011.459

Redox signalling directly regulates TDP-43 via cysteine oxidation and disulphide cross-linking

Cohen TJ, Hwang AW, Unger T, Trojanowski JQ and Lee VMY

TDP-43 is a major constituent of inclusions characteristic of a number of neurodegenerative diseases. Oxidative stress induces reversible intra- and inter-molecular disulphide bond formation at the second RNA-recognition motif impairing the solubility and the RNA processing function of TDP-43.

The EMBO Journal | doi:10.1038/emboj.2011.471

CSP α knockout causes neurodegeneration by impairing SNAP-25 function

Sharma M, Burré J, Bronk P, Zhang Y, Xu W and Südhof TC

The synaptic vesicle protein CSP α is a co-chaperone for the presynaptic SNARE protein SNAP-25 and regulates SNARE-complex assembly. Complementation experiments with CSP α knockout mice and SNAP-25 demonstrate that the destabilization of SNAP-25 alone is sufficient to cause neurodegeneration.

The EMBO Journal | doi:10.1038/emboj.2011.467

Identification and characterization of a resident vascular stem/progenitor cell population in preexisting blood vessels

Naito H, Kidoya H, Sakimoto S, Wakabayashi T and Takakura N

The existence of vessel-resident endothelial stem cells remains a matter of debate. The results presented in this study support the existence of a CD31⁺/CD45⁻ side population in mouse vascular endothelia that carry features of endothelial stem cells/progenitors.

The EMBO Journal | doi:10.1038/emboj.2011.465

Extraordinary transgressive phenotypes of hybrid tomato are influenced by epigenetics and small silencing RNAs

Shivaprasad PV, Dunn RM, Santos BACM, Bassett A and Baulcombe DC

Transgressive segregation in plant hybrids leads to the formation of heritable phenotypes that are more extreme than either parent; the molecular basis of this phenomenon is unknown. This study identifies a number of small RNA loci that are more highly expressed in the hybrid than the parents, and corresponding repressed target genes that may mediate the transgressive phenotypes.

The EMBO Journal | doi:10.1038/emboj.2011.458v

Reviews

DNA methylation: TET proteins – guardians of CpG islands? OPEN

Williams K, Christensen J & Helin K

DNA methylation is an epigenetic modification with important roles in transcriptional regulation during development. The recent finding that the TET family of proteins can convert methylcytosine to hydroxymethylcytosine suggests a potential mechanism for active DNA demethylation.

EMBO reports | doi:10.1038/embor.2011.233

Regulation of TOR by small GTPases

Durán RV & Hall MN

Durán and Hall discuss recent findings on the regulation of mTOR. They specifically focus on the role of small GTPases in this process and how their activity is modulated by a variety of upstream signals that are integrated into a single pathway through mTOR regulation.

EMBO reports | doi:10.1038/embor.2011.257

Protein phosphatases and their regulation in the control of mitosis

Mochida S & Hunt T

Our understanding of the role of kinases in cell cycle control is rather advanced, but we are only scratching the surface of the reciprocal control by protein phosphatases. Mochida and Hunt discuss how removing phosphate moieties controls mitosis and how to move this emerging field forward.

EMBO reports | doi:10.1038/embor.2011.263

Scientific Reports

Assurance of mitochondrial integrity and mammalian longevity by the p62–Keap1–Nrf2–Nqo1 cascade

Kwon J, Shin J & colleagues

p62 is a known component of the autophagy machinery in vertebrates. This Scientific Report shows how p62 is also involved in maintaining mitochondrial integrity and, as a consequence, prevents ageing through reduction of excess reactive oxygen species.

EMBO reports | doi:10.1038/embor.2011.246

Synergism between altered cortical polarity and the PI3K/TOR pathway in the suppression of tumour growth

Rossi F & Gonzalez C

An unexpected crosstalk is revealed between the growth-promoting PI3K/TOR pathway and cell polarity in the suppression of tumour formation in neural stem cells. The combination of pins loss-of-function and dietary restriction, PI3K mutation or TOR inhibition induces tumorigenesis in *Drosophila* larval brains.

EMBO reports | doi:10.1038/embor.2011.230

***Xenopus* paraxial protocadherin inhibits Wnt/ β -catenin signalling via casein kinase 2 β**

Kietzmann A, Wang Y, Weber D & Steinbeisser H

Steinbeisser and colleagues show that the cell adhesion molecule paraxial protocadherin not only activates the non-canonical Wnt/PCP pathway but, at the same time, also inhibits the canonical Wnt/ β -catenin pathway through interaction with casein kinase 2.

EMBO reports | doi:10.1038/embor.2011.240

Perspective

5-Hydroxymethylcytosine: a new kid on the epigenetic block?

Matarese F, Carrillo-de Santa Pau E & Stunnenberg HG

This Perspective discusses recent advances in the genomic mapping of 5-hydroxymethylcytosine (5hmC) bases, and our understanding of their biological relevance. A critical meta-analysis highlights current challenges in characterizing the function of this putative epigenetic mark.

Molecular Systems Biology | doi:10.1038/msb.2011.95

Research Articles

Queueing up for enzymatic processing: correlated signaling through coupled degradation

Cookson NA, Mather WH, Danino T, Mondragón-Palmino O, Williams RJ, Tsimring LS and Hasty J

Overloaded enzymatic processes are shown to create indirect coupling between upstream components in cellular networks. This has important implications for the design of synthetic biology devices and for our understanding of currently inexplicable links within endogenous biological systems.

Molecular Systems Biology | doi:10.1038/msb.2011.94

Programmed fluctuations in sense/antisense transcript ratios drive sexual differentiation in *S. pombe*

Bitton DA, Grallert A, Scutt PJ, Yates T, Li Y, Bradford JR, Hey Y, Pepper SD, Hagan IM and Miller CJ

Strand-specific RNA sequencing of *S. pombe* reveals a highly structured programme of ncRNA expression at over 600 loci. Functional investigations show that this extensive ncRNA landscape controls the complex programme of sexual differentiation in *S. pombe*.

Molecular Systems Biology | doi:10.1038/msb.2011.90

Temporal competition between differentiation programs determines cell fate choice

Kuchina A, Espinar L, Çağatay T, Balbin AO, Zhang F, Alvarado A, Garcia-Ojalvo J and Süel GM

An important cell fate decision in *Bacillus subtilis* is shown to be the result of a 'molecular race' between competing differentiation programs. The programs controlling competence initiation and spore formation progress independently, and without cross-talk, before cell fate choice.

Molecular Systems Biology | doi:10.1038/msb.2011.88

The quantitative proteomes of human-induced pluripotent stem cells and embryonic stem cells

Munoz J, Low TY, Kok YJ, Chin A, Frese CK, Ding V, Choo A and Heck AJR

An in-depth proteomic comparison of human-induced pluripotent stem cells, and their parent fibroblast cells, with embryonic stem cells shows that the reprogramming process comprehensively remodels protein expression levels, creating cells that closely resemble natural stem cells.

Molecular Systems Biology | doi:10.1038/msb.2011.84

Review

Regeneration of the heart

Steinhauser ML and Lee RT

In light of mixed results from clinical trials aiming at cardiac regeneration, it is worth revisiting both the foundations of this process and highlight recent advances that may portend future directions in the field.

EMBO Molecular Medicine | doi: 10.1002/emmm.201100175

Research Articles

Insulin biosynthesis in neuronal progenitors derived from adult hippocampus and the olfactory bulb

Kuwabara T, Kagalwala MN, Onuma Y, Ito Y, Warashina M, Terashima K, Sanosaka T, Nakashima K, Gage FH and Asashima M

Neural progenitor cells from the hippocampus and the olfactory bulb of type I and type II diabetic rats can be transplanted back into diabetic rats and produce insulin, demonstrating their potential as therapeutic agents. Upon transplantation into the pancreas, the neuronal cells not only express transcription factors characteristic for pancreatic beta cells, but also insulin levels in plasma increase and glucose levels in blood stabilize.

EMBO Molecular Medicine | doi: 10.1002/emmm.201100177

AKAP2 anchors PKA with aquaporin-0 to support ocular lens transparency

Gold MG, Reichow SL, O'Neill SE, Weisbrod CR, Langeberg LK, Bruce JE, Gonen T and Scott JD

Cataract is the leading cause of blindness in the world. Lens tissue can deteriorate as a consequence of defective water and nutrient circulation through channels and transporters. Here, the authors show that AKAP2 directly binds AQP0 (a key water channel of the lens circulatory system), bringing PKA close enough to AQP0 to phosphorylate it, thus favoring water influx through the channel and preserving fluid circulation within the lens.

EMBO Molecular Medicine | doi: 10.1002/emmm.201100184

Dantrolene rescues arrhythmogenic RYR2 defect in a patient-specific stem cell model of catecholaminergic polymorphic ventricular tachycardia

Jung CB, Moretti AM, Mederos y Schnitzler M, Iop L, Storch U, Bellin M, Dorn T, Ruppenthal S, Pfeiffer S, Goedel A, Dirschingler RJ, Seyfarth M, Lam JT, Sinnecker D, Gudermann T, Lipp P and Laugwitz KL

Catecholaminergic polymorphic ventricular tachycardia (CPVT) is an inherited cardiac disease that, under physical and emotional stress, leads to life-threatening arrhythmia. Here, the authors generated the first human stem cell-based model for CPVT1, bearing a novel S406L missense mutation in RYR2, and demonstrated its suitability to recapitulate molecular and physiological aspects of the disease phenotype.

EMBO Molecular Medicine | doi: 10.1002/emmm.201100194

Suzanne Beveridge says good-bye

In November 2011, **SUZANNE BEVERIDGE**, Head of Public Relations and Communications at EMBO, left the organization after four years of service. A native Australian, Suzanne decided to leave Heidelberg and head for her new home country Italy.



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© Rainer Mirau Photography, Austria

Distinctive design, persuasive content, clear statements – this was *Suzanne Beveridge's* formula to strengthen EMBO positioning among scientists and the general public. Suzanne closely collaborated with EMBO staff and the community to ensure that media, policy-makers and other institutes take notice of what the organization has to say. She helped develop a new 'look and feel' for EMBO, mirrored in a wide palette of publications such as flyers, posters, banners and the new website. Suzanne, an experienced project leader, significantly improved the visibility of the organization by increasing the coverage of EMBO in the news media.

EMBO Director *Maria Leptin*: "EMBO is run by scientists, and we focus on tackling and solving problems rather than communicating what we do. Some of us are even suspicious of public relations. I have learned from Suzanne how professional communications can help get across the importance of our research to diverse audiences. Every scientist would benefit from having someone like her on board."

The EMBO Meeting was her pet project. Suzanne guided its launch in 2009. Since then, the meeting has steadily evolved to become one of the biggest European life science events. "It was and is a great achievement," stated Deputy Director *Gerlind Wallon*.

"In matters of style, swim with the current; in matters of principle, stand like a rock". This saying by *Thomas Jefferson* was Suzanne's favourite quote and decorated her door on the top floor of the EMBO building. She made it clear that what you say is just as important as how you state things. Her professional curiosity and alertness were a guarantee that EMBO communications stayed on top of new developments and technologies.

In future, the passionate traveller wants to concentrate on coaching others in communications skills – but not before crossing the oceans to visit family and friends in her hometown Brisbane.

From bench to bedside – and back

In December 2011, **EMBO MOLECULAR MEDICINE** held its first conference *Molecular Insights for Innovative Therapies* in Heidelberg. The conference was combined with an editorial board meeting to mark the significant progress of the journal since it was first launched in 2009.



The aims of the meeting were to highlight key areas of innovation and progress in molecular medicine, a field with tremendous prospects and ambitious expectations, and to encourage the exchange of information between the different research areas that contribute to the field. The conference targeted mainly graduate students and postdoctoral scientists offering them a chance to

learn more about this emerging discipline. Participants at the meeting enjoyed a stimulating poster session and discussions with world-class speakers and editorial board members in the striking architectural setting of the EMBL Advanced Training Centre.

After a welcome address by EMBO Director *Maria Leptin* and Chief Editor *Stefanie Dimmeler*, speakers participating in the *Cardiovascular Disease* session examined the role of signaling molecules like VEGF and chemokines, and also the contribution of endothelial metabolism to cell cycle and angiogenesis. *Philippe Sansonetti* (Institut Pasteur, France), who talked about microbial infections and mucosal host immune responses, gave the first keynote lecture highlighting the growing interest in microbiota and the role of metabolism. *Edison Liu* (Jackson Laboratory, USA), another keynote lecturer, presented his systems biology and integrative genomics approaches to understand the transcriptional regulation of breast cancer by nuclear hormone receptors. The use of stem cells in regenerative medicine and the role of brain tumor stem cells in this malignancy were discussed in another stimulating session, after which innate and adaptive immunity as well as inflammation were reviewed. The genetic and epigenetic basis and consequences of a variety of human conditions ranging from trisomy 21 to dyslexia and aging were also addressed and complemented with a discussion of genome-wide mutation analysis after gene therapy. The final session was dedicated to the promising future of miRNAs, with examples ranging from iron homeostasis, Alzheimer's disease and hearing loss to therapeutic applications.

CÉLINE CARRET & ANNEKE FUNK Editors, *EMBO Molecular Medicine*

The three-day *EMBO Molecular Medicine* conference included 22 presentations on the following topics

- Cancer
- Cardiovascular diseases
- Genetics and epigenetics of human diseases
- Host-pathogen interactions
- Immunology
- Small RNAs
- Stem cells

Funding excellence



The EMBO Fellowships Programme team (from left to right): Bernardine Ngu, Liselott Maidment, Zsuzsanna O'Donoghue, Andrea Hutterer and Graciela Christoffel.

The *EMBO Fellowships Programme* helps make top young researchers both mobile and independent. Now a watchword for excellence, the Programme receives more than 2,000 applications for funding every year.

"The EMBO Fellowships are recognized in the community as a valuable step in a scientist's career and as a result, we receive hundreds of applications. Around deadline time, it gets very intense," says Fellowship Programme Manager, *Andrea Hutterer*, herself a former EMBO Fellow.

Andrea, who spent four years as a postdoctoral researcher at the Gurdon Institute in the UK before choosing a career in science management, works with a team of four staff – *Liselott Maidment*, *Zsuzsanna O'Donoghue*, *Bernardine Ngu* and *Graciela Christoffel* – who receive, filter, administer and archive all the applications.

Liselott, who has worked in the Fellowships Office for ten years, supervises the Long-Term Fellowships. These support two-year postdoctoral research visits to laboratories in Europe and elsewhere. There are two deadlines each year for the Long-Term Fellowships, which precipitate a flurry of activity in the Fellowships Office.

She explains the process: "We examine each application to make sure it is complete and eligible. Then we send each eligible application to the Fellowships Committee, which is made up of EMBO Members, for pre-screening. Of these 40 to 50 percent are selected for interview. An EMBO Member or Young Investigator expert in the applicant's research field interviews him or her. All dossiers are then considered by our committee and given individual scores. The Committee then meet to consider the applications and the scores. From this we derive our list of new fellows."

EMBO also offers Short-Term Fellowships. Administered by Zsuzsanna, these fund research visits of up to three months. Applications for the Short-Term Fellowships are ongoing throughout the year. With the help of referees from the community of EMBO Members and Young Investigators, Andrea selects candidates and Zsuzsanna informs them when a decision is reached and arranges the transfer of funds.

The EMBO Fellowships are recognized in the community as a valuable step in a scientist's career and as a result, we receive hundreds of applications.

Apart from the selection and administration of the different fellowships, the team is also involved with a number of other activities. The EMBO Fellowships offer recipients a unique pension plan so that when they move countries and out of their benefit plans, they are not penalised. Bernardine, the newest member of the team, administers the pension plan and oversees payment of funds.

The EMBO Fellowship is a very visible and sought-after stipend amongst early career scientists and processing 2,000 applications is a huge task. "Luckily, we are a really good team," says Liselott. "We support each other, and we are constantly streamlining the processes so that they are as efficient as possible."

Liselott says that the reward comes at the annual Heidelberg *EMBO Fellows' Meeting* where the team finally meet the scientists they have been communicating with all year. "It's great when we put faces to the names. They also give us feedback, which is helpful."

The meeting is a crucial networking opportunity, explains Andrea, as is the biennial *US Fellows' Meeting*. At the meetings, Fellows display posters, present their work and have many opportunities for discussion and social interaction. The online *Fellows' Network* also allows current and previous fellows to connect and communicate.

For more information about the Fellowships Programme and links to FellowsNet, see www.embo.org/programmes/fellowships.html

Fascination of plants – a worldwide day of celebration

Plants provide the air we breathe, the food we eat and the clothes we wear, as well as enhancing our lives with their beauty. From Hungary to Japan, Bulgaria to Australia, people and organizations all around the world will celebrate **18 MAY 2012** as the day of plants.

Organized under the umbrella of the European Plant Science Organization (EPSO), Fascination of Plants Day aims to get as many people as possible – farmers, gardeners, children, students, scientists, politicians and journalists – fascinated by plants and enthused about their importance.

“We want to show all the different aspects of plants,” says EPSO Executive Director, *Karin Metzloff*. “They have such a huge role in our lives, in plant science, agriculture, horticulture, forestry, chemicals, energy, pharmaceuticals and the environment.”

EPSO is coordinating Fascination of Plants Day (FoPD), but encourages countries to nominate a national coordinator to help them with logistics. So far, 29 countries and more than 70 organizations have registered to host events on 18 May. EPSO has

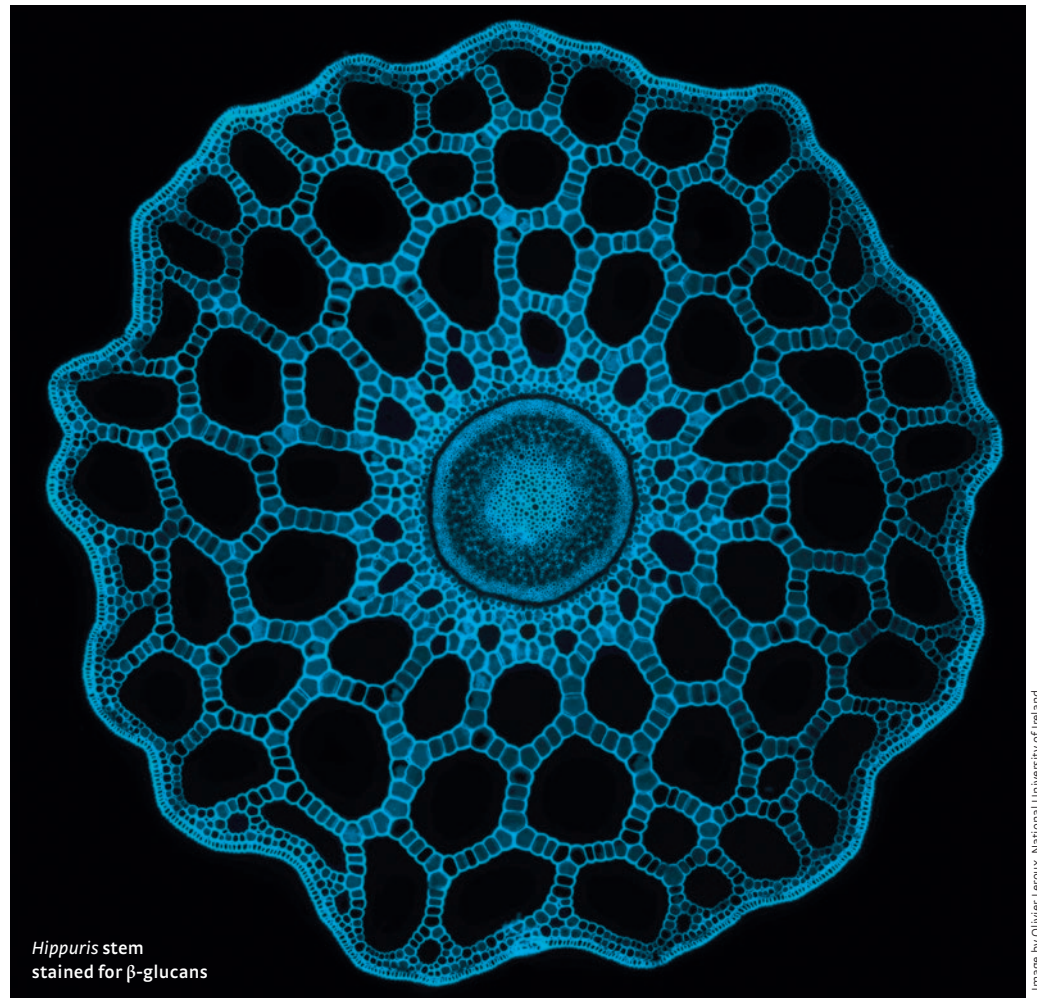


Image by Olivier Leroux, National University of Ireland

EPSO's mission is to

- Promote plant science and scientists
- Represent plant scientists in discussions about future plant science programme priorities across Europe
- Provide an authoritative source of independent information on plant science
- Promote training of plant scientists to meet twenty-first century challenges in breeding, agriculture, horticulture, forestry, plant ecology and sectors related to plant science

FoP facts & figures

- 250,000** plant species
- 28,000** plant researchers and staff belong to EPSO membership
- 3,000** personal EPSO members
- 227** research institutes and universities represented by EPSO
- 56** UK institutions already signed up for FoPD
- 29** countries signed up for FoPD
- 13** Portuguese institutions already signed up
- 12** German institutions already signed up
- 3** countries outside of Europe signed up
- 1** country – Australia – plans a YouTube competition for FoPD

prepared a public relations toolkit, with logos, PowerPoint presentations, flyers and downloadable photographs that anyone can use to promote their Fascination of Plants Day celebrations.

EMBO Members organize FoPDs *Chiara Tonelli* is part of the organizing committee for FoPD in Milan, where large public meetings will be held, including a maxi-screen to highlight the importance of plants and plant-related research for society. *Caroline Dean* of the John Innes Centre says her institute will host an *Evening with Plant Scientists*, moderated by BBC presenter *Sue Nelson*, followed by a FoPD for schools, while *Jonathan Jones*

of the Sainsbury Laboratory will be talking to schools about the field trial of genetically modified potatoes.

“What we want to emphasise,” says Karin, “is that everybody is welcome to join in. People should contact their National Coordinator via the website, contact me or EPSO Coordinator *Jan-Wolfhard Kellmann* to discuss and access our FoPD corporate design toolkit.”

See the website for more details:
www.plantday12.eu

The Frankfurt Institute for Molecular Life Sciences opens its doors

After five years of planning, construction and recruitment of researchers, the Frankfurt Institute for Molecular Life Sciences held its opening ceremony on 16 December 2011. The institute, an interdisciplinary center of excellence for the study of macromolecules, was founded in 2009. The newly opened building is a 3100 m² state-of-the-art facility for the life sciences on the Riedberg campus of the Goethe University Frankfurt.

“We wanted to establish an open, interdisciplinary institute that offered a new organizational structure for life science research,” says *Ivan Dikic*, Scientific Director of the institute and Professor at Goethe University Frankfurt. “The result is a collaborative environment for the study of macromolecules that allows researchers to work across traditional scientific disciplines including physics, biochemistry, chemistry, biology and medicine.”

The institute has come a long way in a short time. Scientists in the Cluster of Excellence Frankfurt “Macromolecular Complexes” at Goethe University Frankfurt and leadership from the Max Planck Institute for Biophysics were instrumental in making the original concept for an interdisciplinary center a reality. *Harald Schwalbe*, Speaker of the Cluster of Excellence Frankfurt “Macromolecular Complexes” points out: “We are establishing an internationally competitive institute that will decipher the structure, composition and interaction of large molecular complexes essential for life within the cell.”

The institute offers workspace for 180 scientists. Nine research groups are working in the building and two more will join shortly. At maximum capacity, 14 scientific groups will perform fundamental research, develop new techniques for the life sciences, and train scientists, students and visiting research scholars.

Inside the new building, the arrangement of offices, laboratories and core facilities promotes interaction between the different research groups. Core facilities, which include resources for advanced light microscopy, a dedicated facility for the production of protein crystals, and an electron microscopy suite, provide services for scientists on campus as well as external customers.

Says Dikic: “The life science research landscape changes rapidly but one significant priority for us is to encourage a creative dialogue about science without a hierarchical structure of leadership. A team-style leadership offers balanced decision-making and, most importantly, gives us more time for science while sharing administrative duties.” Consistent with this philosophy, the leadership of the institute has

been shared from 2009 by the Scientific Director *Dikic* and *Volker Dötsch*, Vice Director and Professor at the Institute of Biophysical Chemistry of the Goethe University Frankfurt. In 2012, *Ernst Stelzer*, a newly recruited Professor at the institute and Professor at the Institute of Cell Biology and Neuroscience at Goethe University Frankfurt, will join as Vice Director. All three scientists are EMBO Members.

Dikic and his team use molecular and functional approaches to study ubiquitin, a cellular protein that regulates many important cellular processes. Dötsch, an expert in structural biology, focuses on the characterization of membrane proteins and mechanisms of quality control in the female germline by the p53 family of proteins. Ernst Stelzer is a physicist who uses advanced light microscopy to analyze cellular and developmental processes.

Scientific discoveries are already emerging from interdisciplinary research at the institute. Researchers are revealing new defense mechanisms against pathogens, different signaling pathways in the immune system, and how DNA damage impacts the quality control of the genetic integrity of egg cells. A recent milestone in the field of DNA nanotechnology was the creation of two rings of DNA, each 18 nanometers in diameter, and interlocking the molecules like two links in a chain. These small DNA molecules may be used in the future to arrange and study other proteins or other molecules that are currently too small for manipulation.

The German Federal Government and the State Government of Hesse provided Euros 24.5 million for the construction phase of the project and an additional Euros 2.4 million to support the acquisition of laboratory equipment. The Cluster of Excellence Frankfurt “Macromolecular Complexes” provided more than 20 million Euros to support the recruitment and operations of research groups at the institute.



Ivan Dikic and Volker Dötsch

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Prime Minister of Rhineland Palatinate, Kurt Beck, and Minister of Science, Doris Ahnen, get a quick lesson in DNA isolation from Dr. Bernhard Korn (left), Director of Scientific Core Facilities and Technology, at the IMB opening ceremony in March.



IMB – a new center for life science research

While the Institute of Molecular Biology (IMB) – the cutting-edge basic research centre in Mainz, Germany, led by EMBO Member **CHRISTOF NIEHRS** – only opened in March 2011, it has wasted no time getting down to the business of science.

The IMB focuses on research in the fields of developmental biology, epigenetics and DNA repair as well as related biomedical areas. Its groups include leading biochemists, geneticists, cell and developmental biologists, bioinformaticians and applied physicists.

By the end of 2012, the institute, which receives core funding of 100 million euros over 10 years from the Boehringer Ingelheim Foundation, aims to have around 150 employees and more than ten research groups. It offers

an International PhD Programme, giving talented PhD students fully funded fellowships and the opportunity to undertake research on the cutting-edge of modern biology.

The IMB plans a series of symposia and conferences for 2012. The first, a symposium called *Frontiers in Epigenetics and DNA Repair*, features an array of distinguished speakers, including EMBO Associate Members *Frederick Alt* and *Rudolf Jaenisch*, and EMBO Members *Ingrid Grummt*, *John Gurdon*, *Stefan Jentsch*, *Josef Jiricny*, *Renato Paro* and *Ernst-Ludwig Winnacker*. It takes place on 16 March and registration is free.

The IMB conference, *DNA Demethylation, DNA Repair and Beyond*, will take place from 18 to 21 October 2012 and includes speakers such as EMBO Members *Geneviève Almouzni*, *Jean-Marc Egly*, *Jan Hoeijmakers*, *Azim Surani* and *Wolf Reik*.

For more information on the conferences, PhD programme and research details, see www.imb-mainz.de



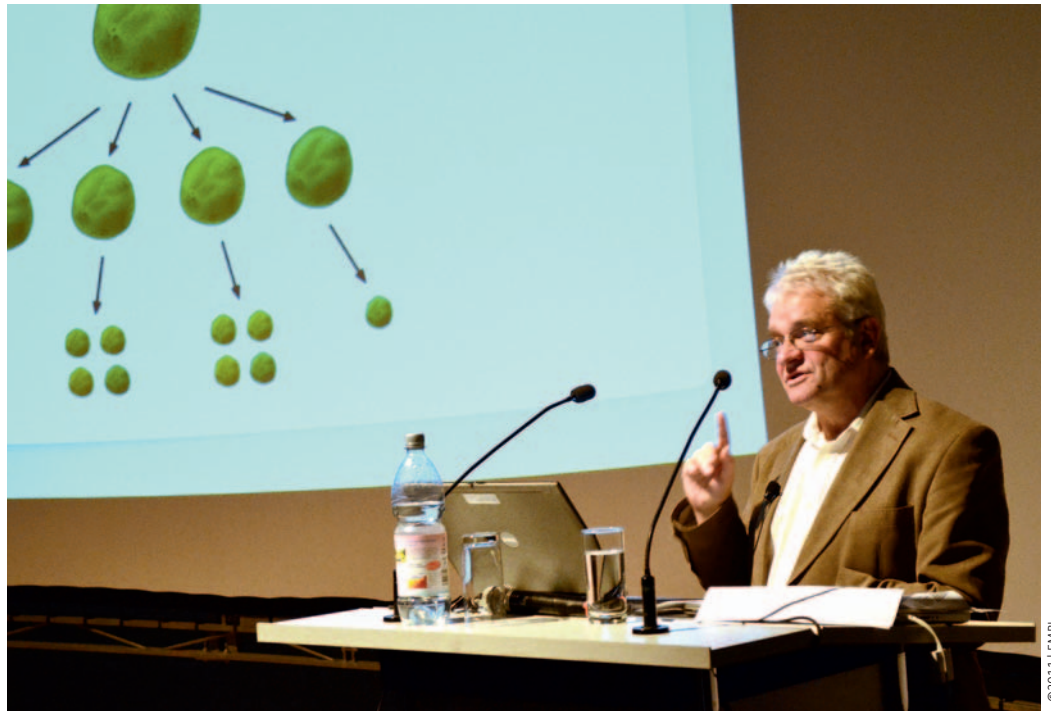
Seminars and meetings are part of the lively scientific atmosphere at the IMB.

Great Ideas in Biology

PAUL NURSE, President of the Royal Society and Chief Executive and Director of the Francis Crick Institute, was in Heidelberg, Germany, on 7 November to give the lecture *Great Ideas in Biology*.

In his talk, Nurse gave a historical account of some of the great ideas that have shaped contemporary thinking in biology. The four ideas include the cell, the gene, natural selection, and life as chemistry. Each example was illustrated with narratives about the work of some of the pioneers of biological inquiry.

At the end of the lecture, Nurse also described an emerging fifth great idea, namely biology as an organized system that focuses on the management of information. Increasingly, scientists consider biological reactions not in linear terms but as complex networks and pathways that better describe the interactions of the molecules of life. Stated Nurse, "Complexity moves biology to a stranger, less intuitive world." The talk, which was open to the general public, was organized by the



European Molecular Biology Laboratory, Deutsches Krebsforschungszentrum, Ruprecht-Karls-Universität Heidelberg, and the UniversitätsKlinikum Heidelberg. The Manfred Lautenschläger Stiftung provided financial support for the lecture.

Nurse will give the keynote lecture at The EMBO Meeting 2012 in Nice 22–25 September.



Mavilio appointed Scientific Director of Genethon

EMBO Member **FULVIO MAVILIO** (1995) has been appointed Scientific Director of Genethon, the European research institution dedicated to gene therapy. Genethon is a not-for-profit organization created and funded by the Association Française contre les Myopathies, a French association that supports patients and their families, and which organizes the annual fundraising Telethon event in France. The mission of Genethon is to design gene therapy products for rare diseases and, ultimately, to make innovative treatments available to patients.

“Gene therapy has been my major interest for the past twenty years, and joining Genethon is the fulfillment of my career,” says Mavilio. “This institution has been part of the European history of gene therapy since the early days of clinical research in this area. Today, Genethon is a formidable place to conceive, develop and manufacture gene therapy products.”

Adds Mavilio, “I would like to bring new impulse to the science of Genethon, and make it a true European hub for clinical translation. Europe hosts the best players in the gene therapy field and I would like them to consider Genethon as the place to come to transform their ideas into therapeutic reality.”

Fulvio Mavilio joins Genethon from the University of Modena and Reggio Emilia, Italy, where he was Director of the Gene Therapy Laboratory at the Center for Regenerative Medicine, and where he will remain a part-time Professor of Molecular Biology. The ERC Advanced Investigator Grant he was awarded in 2011 to develop innovative gene correction technology for genetic diseases has been transferred to Genethon. Mavilio started his position as Scientific Director of Genethon (www.genethon.fr) in January 2012.

EMBO

2013

Funding available to organize events in 2013

The EMBO Courses and Workshops

Programme funds scientific events that promote collaborations and exchange in the latest life science advances. Funding priority is given to events held in an EMBC member state, Singapore or South Africa.

Conferences

Supporting European scientific communities, these conferences (often part of a series) enable groups of scientists to meet and discuss topics with leaders in the field.

Workshops

Original meetings providing scientists from different fields with an opportunity to discuss common themes and exchange cross-disciplinary results.

Practical Courses

Promoting the transfer of new methods and emerging techniques to a broad number of laboratories.

EMBO | FEBS Lecture Courses

Providing students and post-doctoral fellows with opportunities to learn from and be mentored by experts in their research field.

Plenary Lectures

Funding is also available for Plenary Lectures given by EMBO Members and lectures given by EMBO Young Investigators at major international scientific meetings in 2012 or 2013.

Apply now
for EMBO event funding!
DEADLINE 1 March

www.embo.org/programmes/courses-workshops.html



EMBO
excellence in life sciences

Summer school

The fourth John Innes – Rudjer Bošković summer school in Applied Molecular Microbiology will take place in Dubrovnik, Croatia, from 25 August to 2 September 2012. EMBO Member **DAVID HOPWOOD** from the John Innes Centre, Norwich is one of the summer school directors.



©2008 Dubrovnik Tourist Board

“The title of the summer school is *Microbial Metabolites in Nature and Medicine* and it will build on the success of the previous courses,” says David. “The aim is to recognise the recent development of interest in microbial metabolites, coupled with the explosive development of sequencing technology, bioinformatics and chemical analysis. A particular urgency has been added to the search for novel antibiotics by the rapid rise in drug-resistance among pathogenic microorganisms and cancers.”

Aimed at postgraduate and postdoctoral scientists, the summer school includes a high degree of interaction between the students and faculty, as well as hands-on computer workshops to annotate the genomes and analyse natural product gene clusters.

For more details and information on grants, see www.jic.ac.uk/science/molmicro/summerschool/

New and northerly – EMBO Practical Course inspires students

The new EMBO Practical Course ‘Modern biophysical methods for protein–ligand interactions’ took place in Oulu, Finland in October. **VLADIMIR RYBIN** from the EMBL Protein Expression and Purification Core Facility, who was one of the organizers, told *EMBOencounters* that the course was unique in a number of ways.



Vladimir Rybin (left) and Kalervo Hiltunen open the EMBO Practical Course in Oulu, Finland

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“Firstly, we tried to give the students efficient algorithms to solve protein–ligand interaction problems and the chance to apply the latest biophysical methods to protein interactions. We invited people from both academia and industry and encouraged the students to experiment using brand-new technologies such as thermophoresis.” Vladimir says the students, who came from labs and universities all over the world (more than 12 countries), appreciated this novel approach.

The course is not only the first of its kind, but also the most northerly EMBO Course to

date, just a few degrees closer to the North Pole than a recent course set in Iceland. “I think it helps to remove people from the classical lab setting,” says Vladimir. “Getting them into an environment where they are surrounded by nature helps them to relax and learn on a deep level. This made the course a very friendly and scientifically rewarding event.”

The other course organizers were *Kalervo Hiltunen, Christian Boulin, Rik Wierenga* and *Lloyd Ruddock* and the course was co-funded by the Biocenter Oulu, Biocenter Finland and the University of Oulu.



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EMBL Advanced Training Centre

www.embo-embl-symposia.org



New Perspectives on Immunity to Infection

19–22 May 2012

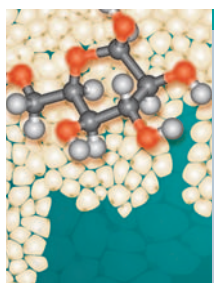
ABSTRACT SUBMISSION DEADLINE 8 MARCH 2012
REGISTRATION DEADLINE 12 APRIL 2012

ORGANIZERS

Jean-Laurent **Casanova**
Kate **Fitzgerald**
Jonathan **Howard**
Alan **Sher**

KEYNOTE SPEAKERS

Max **Cooper**
Andrew **McMichael**



Diabetes and Obesity

13–16 September 2012

ABSTRACT SUBMISSION DEADLINE 5 JULY 2012
REGISTRATION DEADLINE 2 AUGUST 2012

ORGANIZERS

Jens **Brüning**
Matthias **Tschöp**

KEYNOTE SPEAKERS

Richard **DiMarchi**
Jeffrey M. **Friedman**
Markus **Stoffel**



Quality Control From Molecules to Organelles

19–22 September 2012

ABSTRACT SUBMISSION DEADLINE 12 JULY 2012
REGISTRATION DEADLINE 9 AUGUST 2012

ORGANIZERS

Bernd **Bukau**
John **Diffley**
Matthias **Hentze**

KEYNOTE SPEAKERS

Stefan **Jentsch**
Elisa **Izaurralde**
Jonathan **Weissman**



The Complex Life of mRNA

7–10 October 2012

ABSTRACT SUBMISSION DEADLINE 2 AUGUST 2012
REGISTRATION DEADLINE 23 AUGUST 2012

ORGANIZERS

Anne **Ephrussi**
Nahum **Sonenberg**
Joan A. **Steitz**
David **Tollervey**

KEYNOTE SPEAKERS

Elena **Conti**
Steven L. **McKnight**
Nikolaus **Rajewsky**



Germline Immortality through Totipotency

13–16 October 2012

ABSTRACT SUBMISSION DEADLINE 9 AUGUST 2012
REGISTRATION DEADLINE 30 AUGUST 2012

ORGANIZERS

Edith **Heard**
Ruth **Lehmann**
Janet **Rossant**

KEYNOTE SPEAKERS

Angelika **Amon**
John **Gurdon**
Azim **Surani**

EMBO Poster Prize winners

Congratulations to the following winners of competitions held at recent EMBO events

Tina Strobel

Albert-Ludwigs-University, Freiburg im Breisgau, Germany
Identification of a highly flexible glycosyltransferase from *Saccharothrix espanaensis*
Presented at the ESF-EMBO Symposium: *Synthetic biology of antibiotic production* Sant Feliu de Guixols, Spain 2–7 October 2011

Miriam Stoeber

ETH Zurich, Switzerland
EHD2: A novel caveolar accessory protein that anchors caveolae to the plasma membrane
Presented at the EMBO Conference Series: *Dynamic endosomes: mechanisms controlling endocytosis* Chania, Greece 24–29 September 2011

Yuanye Zhang

Institute of Plant Sciences, University of Bern, Switzerland
The ecological and evolutionary relevance of heritable epigenetic variation
Presented at the ESF-EMBO Symposium: *Epigenetics in Context: From Ecology to Evolution* Sant Feliu de Guixols, Spain 18–23 September 2011

Luca Magnani

Dartmouth Medical School, Dartmouth College, NH, USA
The pioneer factor PBX1 guides a distinct ER α signaling in breast cancer
Presented at the EMBO Conference Series: *Nuclear Receptors: From Molecular Mechanism to Health and Disease* Barcelona, Spain 16–20 September 2011

Nuno Miguel Luis

Center for Genomic Regulation and UPF, Barcelona, Spain
Regulation of human epidermal stem cell proliferation and senescence requires Polycom-dependent and -independent functions of Cbx4
Presented at the MDC Berlin Meeting: *Stem cells in development and disease* Berlin, Germany 11–14 September 2011

David E. Weinberg

Whitehead Institute for Biomedical Research, Howard Hughes Medical Institute and Department of Biology, Massachusetts Institute of Technology, USA
The inside-out mechanism of Dicers from budding yeasts
Presented for his talk given at the *IMBA Vienna's Sixth Microsymposium on small RNAs* Vienna, Austria 16–18 May 2011

Awards of Excellence

EMBO MEMBERS

Honorary Knighthood

Nobel laureate **Venkatraman Ramakrishnan** has been honoured with a knighthood by the royal establishment in London.

58-year-old Ramakrishnan is based at the MRC Laboratory of Molecular Biology in Cambridge. He has been conferred a knighthood "for services to molecular biology" in the New Year Honours List 2012. The Indian-American scientist said the award was a recognition of the numerous contributions that immigrants have made to British society.

2012 Paul Ehrlich and Ludwig Darmstaedter Prize

EMBO Associate Member **Peter Walter** of the University of California, San Francisco, US, has been recognized with this award for his "outstanding research achievements in the field of cell biology." The prize worth 100,000 euros specifically recognizes Walter's work on how cells cope with stress – insight that has profound implications for understanding and treating numerous human diseases, including cancer, diabetes, cystic fibrosis and neurodegenerative disorders. The award-giving ceremony will take place in St. Paul's Church in Frankfurt on 14 March, the birthday of immunologist Paul Ehrlich (1854–1915).

Gottfried Wilhelm Leibniz Prize 2012

EMBO Members **Matthias Mann** and **Nikolaus Rajewsky** are to receive the Gottfried Wilhelm Leibniz Prize – Germany's most prestigious research award worth 2.5 million euros. Mann, Director at the Max Planck Institute of Biochemistry in Martinsried, receives the award for his work on the development of mass spectrometry procedures for protein analysis. Rajewsky, Professor of Systems Biology at the Max Delbrück Center for Molecular Medicine Berlin, was recognized for his research on microRNAs and the methodological and technological advances he and his group have made. The Leibniz Prize 2012 will be awarded to a total of eleven scientists and presented on 27 February 2012 in Berlin.

L'ORÉAL-UNESCO For Women in Science Awards for 2012

EMBO Member **Frances Ashcroft** is one of five female scientists to win the L'ORÉAL-UNESCO For Women in Science Awards for 2012. The 100,000 dollars award recognizes her work in advancing understanding of insulin secretion and neonatal diabetes. Ashcroft is a Royal Society Research Professor at the University of Oxford and a Fellow of Trinity College Oxford. She says: "This award honours not only myself but also the team of dedicated scientists and

collaborators with whom I have worked. I have been enormously fortunate: there is nothing more exciting or more rewarding than discovering something new."

Bonnie Bassler, who spoke at The EMBO Meeting 2011 in Vienna, also received the award.

2011 Victoria Prize



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EMBO Member **Andreas Strasser** wins the 2011 Victoria Prize in Australia for his research showing that abnormalities in the control of cell death, or apoptosis, can cause autoimmune disease or cancer and prevent tumour cells from responding to anti-cancer therapy. This is Victoria's highest honour for science and comes with a prize of 50,000 Australian dollars.

EMBO YOUNG INVESTIGATORS

2012 HHMI International Early Career Awards

EMBO Young Investigators **Óscar Fernández-Capetillo** and **Fyodor A. Kondrashov** and EMBO Installation Grantees **Luisa M. Figueiredo** and **Marcin Nowotny** are among the top biomedical scientists to receive the inaugural International Early Career Scientist Awards from the Howard Hughes Medical Institute. The 28 recipients, chosen from 760 applicants, represent a wide range of disciplines, from neuroscience to virology to plant science. The award comes with a prize of 650,000 US dollars.

ERC Starting Grant

EMBO Young Investigator **Anja Groth** receives an ERC Starting Grant worth 12.5 million Danish kroner for her research into epigenetics and cellular memory. Other EMBO 2011 Young Investigators who received ERC Starting Grants in 2011 are **Ivan Ahel**, **Ellen Nollen**, **Akhilesh Reddy**, **Maria-Elena Torres-Padilla** and **Marc Veldhoen**.

Thannhauser (DGVS) Prize

EMBO Young Investigator **Tom Lüdde** receives the Thannhauser Prize from the German Association for Digestive and Metabolic Disorders (DGVS). He wins 10,000 euros for his research into the mechanisms behind the development of liver cancer.

A Good Read – Publications from the EMBO community

Differential oestrogen receptor binding is associated with clinical outcome in breast cancer

Jason S. Carroll (EMBO Young Investigator) *et al.* *Nature* | 4 January 2012
doi: 10.1038/nature10730

Ars2 maintains neural stem-cell identity through direct transcriptional activation of Sox2

Celia Andreu-Agullo (EMBO Fellow) *et al.* *Nature* | 25 December 2011
doi: 10.1038/nature10712

Chemical informatics and target identification in a zebrafish phenotypic screen

Alexandra Tolia (EMBO Fellow) *et al.* *Nature Chemical Biology* | 18 December 2011
doi: 10.1038/NChemBio.732

DNA-binding factors shape the mouse methylome at distal regulatory regions

Rabih Murr (EMBO Fellow), Vijay K. Tiwari (EMBO Fellow) *et al.* *Nature* | 14 December 2011
doi:10.1038/nature10716

An ankyrin-repeat ubiquitin-binding domain determines TRABID's specificity for atypical ubiquitin chains

Jason W. Chin (EMBO Member), David Komander (EMBO Young Investigator) *et al.* *Nature Structural & Molecular Biology* | 11 December 2011
doi:10.1038/nsmb.2169

Appointments

EMBO MEMBERS

EMBO Associate Member **Inder M. Verma** was appointed Editor-in-Chief of the *Proceedings of the National Academy of Sciences (PNAS)*, the official journal of the Academy. He formally assumed the editorship in November 2011.

An American Cancer Society Professor of Molecular Biology at the Salk Institute for Biological Studies in La Jolla, California, Verma was elected to the Academy in 1997 and has served on the Editorial Board of PNAS since 2001.

Evidence for interstitial carbon in nitrogenase FeMo cofactor

Oliver Einsle (EMBO Young Investigator) *et al.* *Science* | 18 November 2011
doi: 10.1126/science.1214025

Chromatin-associated RNA interference components contribute to transcriptional regulation in *Drosophila*

Davide F.V. Corona (EMBO Young Investigator) *et al.* *Nature* | 6 November 2011
doi:10.1038/nature10492

The evolution of gene expression levels in mammalian organisms

Henrik Kaessmann (EMBO Young Investigator) *et al.* *Nature* | 19 October 2011
doi:10.1038/nature10532

Motor antagonism exposed by spatial segregation and timing of neurogenesis

Marco Tripodi (EMBO Fellow) *et al.* *Nature* | 19 October 2011
doi:10.1038/nature10538

A vascular niche and a VEGF/Nrp1 loop regulate the initiation and stemness of skin tumours

Cedric Blanpain (EMBO Young Investigator) *et al.* *Nature* | 19 October 2011
doi:10.1038/nature10525

Cascades of multisite phosphorylation control Sic1 destruction at the onset of S phase

Martin Lepiku (EMBO Installation Grant) *et al.* *Nature* | 12 October 2011
doi:10.1038/nature10560

Distinct stem cells contribute to mammary gland development and maintenance

Cedric Blanpain (EMBO Young Investigator) *et al.* *Nature* | 9 October 2011
doi:10.1038/nature10573

Active-site remodelling in the bifunctional fructose-1,6-bisphosphate aldolase/phosphatase

Oliver Einsle (EMBO Young Investigator) *et al.* *Nature* | 9 October 2011
doi:10.1038/nature10458

Structural basis for cytokinin recognition by *Arabidopsis thaliana* histidine kinase 4

Michael Hothorn (EMBO Fellow) *et al.* *Nature Chemical Biology* | 2 October 2011
doi:10.1038/nchembio.667

"Dr. Inder Verma is known worldwide for his scientific creativity and for his conscientiousness and fair-mindedness", said *Ralph Cicerone*, president of the National Academy of Sciences. "He is the ideal person to lead PNAS."

As member of the EMBO Global Exchange Committee, Verma is also guiding the activities of the 2010 launched initiative that promotes scientific collaboration between researchers across borders.

Transitions

EMBO MEMBERS

EMBO Associate Member, John Mattick, is appointed Executive Director of the Garvan Institute, Sydney, Australia. In making the announcement, Garvan Chairman Bill Ferris said that Professor Mattick was a pioneer in the analyses of the human genome sequence and the critical role of specific DNA sequences in the regulation of gene expression during human development and susceptibility to

complex diseases such as cancer and diabetes. "He will take up his appointment early in January 2012 with a mandate to further enhance not only Garvan's outstanding research through application of the latest technologies but also the translation of its discoveries into new ways to prevent and treat disease."

The next *EMBOencounters* issue –
Summer 2012 – will be dispatched in **July 2012**.
Please send your suggestions, contributions and news to
communications@embo.org by **4 May 2012**.

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Paul Nurse

Linda Partridge

Rob Singer

David Tollervey

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