



EMBO Courses & Workshops  
A look behind the scenes

PAGES 12–13



Life Science Alliance

New scientific journal

## Announcing Life Science Alliance

PAGE 3



Partnership with Chile

## Fostering international collaborations

PAGE 4

ERC Scientific Council in Heidelberg  
Grants under discussion

PAGE 7

Facts & Figures  
EMBO activities in 2017 at a glance

PAGES 10–11

“Every question begins with SUMO”  
Frauke Melchior receives FEBS |  
EMBO Women in Science Award

PAGE 14

# Table of contents

## EMBO news



Announcing Life Science Alliance Page 3

Chilean researchers now eligible for EMBO support Page 4

Exchanging ideas in India Page 4

Meet the latest Installation Grantees Page 5



Spotlight on the ASCB | EMBO Meeting Pages 08–09

Looking back: 2017 at a glance Pages 10–11

Behind the scenes of EMBO events Pages 12–13



Frauke Melchior receives FEBS | EMBO Women in Science Award Page 14

## Science policy

Preprint quality control Page 6

DORA relaunch: towards fair evaluation of researchers Page 7



EMBL and EMBO host the ERC Scientific Council Page 7

## EMBO community

Updates from across Europe Pages 15–16

## Awards and publications

Achievements and papers by members of the EMBO community Page 17

## EMBO events

Upcoming courses, workshops and conferences Page 18

## Fresh from EMBO press

Some of EMBO's latest publications at a glance Page 19



## Editorial

“Yet another journal?” I would not be surprised if that was a question that went through your mind when reading the announcement of our newest journal, *Life Science Alliance* (p3). It is a question we asked ourselves more than once when we first considered adding another publication to the EMBO Press portfolio.

We came to the conclusion that – despite the already crowded journal market and the development of alternative means of sharing scientific findings – there are good reasons to launch this particular publication. This is in fact not ‘just another journal’. Its raison d’être is to address some of the existing challenges in scientific publishing and the needs of the life science community.

We would like our authors to publish their work as quickly and effortlessly as possible. We would like our reviewers to be relieved of the additional reviewing burden associated with multiple submissions of the same manuscript at different journals. And we would like our community to feel we are working towards sustainable ways of Open Access publishing that are not dominated by a small number of for-profit publishers.

These are our reasons for founding *Life Science Alliance*. We are proud and excited to have Rockefeller University Press and Cold Spring Harbor Laboratory Press as our partners, two other not-for-profit academic community publishers who share these values.

I hope you agree that *Life Science Alliance* is not simply an additional journal, and encourage you to participate as authors, reviewers or advisors in order to make it a success.

Maria Leptin  
Director, EMBO



# Life Science Alliance

## Announcing Life Science Alliance

A new open-access, non-profit, community-driven journal

The EMBO Press journal portfolio now includes *Life Science Alliance*. The open-access journal is published in a partnership with Rockefeller University Press and Cold Spring Harbor Laboratory Press and will cover the full spectrum of life science and biomedical research. *Life Science Alliance* is committed to the rapid, fair and transparent publication of research results.

### Reduced effort for authors

"The aim of creating this new journal was to reduce the time authors spend on getting their papers published and to reduce the overall burden on reviewers without compromising scientific standards," says Andrea Leibfried, the Executive Editor for *Life Science Alliance*.

Bernd Pulverer, Head of EMBO Scientific Publications, adds: "The partnership will help us publish more high quality papers from a wide range of authors and subject areas. It is the first time that three renowned non-profit community publishers jointly launch a journal. We hope that our union will help to balance the developing dominance of a small number of for-profit publishers."

### Firm commitment for manuscript transfers

An aspect essential to the journal's concept is that, in addition to direct submissions, authors are invited to transfer their manuscripts to *Life Science Alliance* from nine journals published by the three alliance partners: *The EMBO Journal*, *EMBO Reports*, *Molecular Systems Biology*, *EMBO Molecular Medicine*, *Journal of Cell Biology*, *Journal of Experimental Medicine*, *Journal of*

*General Physiology*, *Genes & Development* and *Genome Research*.

In addition to conceptually novel studies, the journal also explicitly welcomes submission of resources, methods, as well as important confirmatory, negative or refuting data.

Before recommending a transfer, the editors at the alliance journal to which the manuscript was initially submitted consult – with the authors' permission – with the *Life Science Alliance* editors to provide authors with a firm commitment. For manuscripts invited for transfer to *Life Science Alliance* following peer review, commitment towards publication is based on the existing referee reports and is accompanied by a clear set of minimal revision requirements for publication if necessary. Each study is therefore reviewed by one set of reviewers only.

To ensure a community-driven, academically-led editorial process, the Executive Editor works closely with four Academic Editors: Julia Cooper (National Cancer Institute, Bethesda, USA), Florent Ginhoux (A\*STAR, Singapore), Sebastian Jessberger (Brain Research Institute and University of Zurich, Switzerland) and Michael Overholtzer (Memorial Sloan Kettering Cancer Center, New York, USA).

[life-science-alliance.org](http://life-science-alliance.org)

For the latest updates, follow the journal on Twitter @LSAjournal

## About the journal

*Life Science Alliance* is a new global, open-access, peer-reviewed journal jointly published by three leading non-profit science organizations, which have formed an alliance committed to rapid, fair, and transparent publication of papers of high value to the community across the full spectrum of the life sciences and biomedicine.

**Quality:** *Life Science Alliance* meets the same high standards in its scientific assessment and editorial process as the other journals published by the three partners.

**Speed of publication:** Authors can submit directly to *Life Science Alliance* or will be invited to transfer work that was deemed of interest, but not suitable for the other journals published by the three alliance partners. *Life Science Alliance* aims to publish every valuable study of high quality submitted to any of the partner journals with minimal delay.

**Reduced effort for authors:** *Life Science Alliance* empowers authors to publish their research with minimal delay by avoiding repetitive rounds of submission, peer-review, and revision. Manuscripts are easy to submit. Any format is accepted.

**Trustworthy editorial process:** The academic editors of *Life Science Alliance* are leaders in their fields.

**A journal driven by community needs:** *Life Science Alliance* is fully open access. It publishes novel research findings, resources, methods as well as important confirmatory, negative or refuting data. *Life Science Alliance* offers 'scooping protection' from the day of submission to *Life Science Alliance* or, for transfers, the day of submission to alliance journals. The policy also extends to the date of preprint posting of a manuscript.



# EMBO support now available for Chilean researchers

Partnership with National Commission for Scientific and Technological Research in Chile launched

In December 2017, EMBO announced a new cooperation partnership that will enable Chilean researchers to participate in its programmes and activities.

In order to strengthen scientific exchange and collaboration between Chile and Europe, EMBO, together with its intergovernmental funding body, EMBC, signed a cooperation agreement with the National Commission for Scientific and Technological Research in Chile (CONICYT).

"International collaboration beyond national borders is a vital component of successful

science," said EMBO Director Maria Leptin. "We are very pleased to form this partnership with CONICYT, which will enable us to encourage and facilitate stronger interactions between life scientists in Europe and those in Chile."

The agreement – which took effect on 1 January 2018 – is part of EMBO Global Activities it aims to catalyze scientific exchange, support talented researchers, and strengthen the practice of science across the globe.

The President of CONICYT Council, Mario Hamuy, commented: "The study of the processes at the molecular level has become very important in the last decade. In this context, signing this agreement enabling Chilean researchers to access the programmes and activities offered by EMBO, such as fellowships, courses and workshops, is a great opportunity for researchers in Chile. It will

help them to continue generating cutting-edge knowledge and to interact with the most prestigious researchers in this area."

"Increased interaction between scientists in Chile and Europe will support the formation of strong networks and collaborative activities," adds Gerrit van Meer, President of the European Molecular Biology Conference (EMBC).

[embo.org/about-embo/global-activities](http://embo.org/about-embo/global-activities)

## Exchanging ideas in India

EMBO Council Member Victor de Lorenzo reports on his Global Exchange Lecture Series

It began with an invitation from Kolkata. The Bose Institute had invited EMBO Council Member Victor de Lorenzo from the National Center for Biotechnology (CNB-CSIC), Madrid, Spain, to give a lecture as part of the institute's 100th anniversary celebrations.

"The institute had offered to pay my accommodation, so I was looking for other funding for the travel", explains de Lorenzo. "Fortunately, during the discussions with Tapan Dutta, my host at the institute, I remembered that EMBO provides funds for its members to give lectures."

In addition to keynote lectures by EMBO Members and research lectures by Young Investigators, EMBO also finances the Global Exchange Lecture Series scheme. As part of its initiatives to promote interactions between scientists worldwide, EMBO funds lecture series presented by EMBO Members and Young

Investigators at institutes in non-European countries and – in return – by prominent researchers based outside Europe at European institutes.

### Sharing information and making connections

Victor de Lorenzo received support for a Global Exchange Lecture Series after he was approached to give a second lecture in India. Guhan Jayaraman and Himanshu Sinha at the Indian Institute of Technology Madras in Chennai invited him to speak as the inaugural lecturer in the new Systems Biology programme. In both locations he presented his own research but also talked about EMBO.

"I felt that both visits to Chennai and Kolkata were very successful," says de Lorenzo. In addition to having lots of interaction with faculty, he was able to speak with many students, who were interested in a range of topics from EMBO

Fellowships, Courses & Workshops and the Young Investigator Programme to more general topics such as career development and gender issues in science.

"Indian researchers are determined to put their country on the map of frontline molecular biology," adds de Lorenzo. "And in that sense, it was a very productive and rewarding trip for me also. I met a lot of young, amazingly talented people, raising smart questions and proposing ideas – it was truly inspirational."

EMBO Members and Young Investigators interested in giving lecture series in Chile, India, Singapore or Taiwan should get in touch with the Global Activities office at [global@embo.org](mailto:global@embo.org).

**More information:** [embo.org/funding-awards/lecture-grants/global-exchange-lecture-series](http://embo.org/funding-awards/lecture-grants/global-exchange-lecture-series)

# Establishing excellence across Europe

In December 2017, EMBO awarded Installation Grants to eight life scientists setting up research groups in the Czech Republic, Estonia, Poland, Portugal and Turkey. They join 94 group leaders who have so far been supported in establishing independent laboratories by EMBO Installation Grants.



**Bruno Costa-Silva**

Exosome populations associated with liver metastasis  
Lisbon, PT



**Elif Firat-Karalar**

Dissecting the function and regulation of the centrosome  
Istanbul, TR



**Zuzana Keckesova**

Identification of cancer cell vulnerabilities  
Prague, CZ



**Ayşe Koca Caydasi**

Regulation of mitotic exit  
Istanbul, TR



**Elin Org**

The interplay between gut microbiota and type 2 diabetes  
Tartu, EE



**Wojciech Pokrzywa**

Coordination of proteolytic quality control networks  
Warsaw, PL



**Arto Pulk**

Neuronal protein synthesis regulation by RNA granules  
Tartu, EE



**Agata Starosta**

Ribosome specialization in *Bacillus subtilis*  
Lublin, PL

Through the Installation Grants scheme, we encourage young researchers to return or move to countries that find it difficult to compete with large well-funded centers of research in some of the other European countries,” says EMBO Director Maria Leptin.

She adds: “We hope to improve the participating countries’ competitiveness in European science by helping talented scientists set up laboratories there.”

The EMBO Installation Grants scheme was launched in 2006. The scheme is based on and replaced the EMBO/HHMI Startup Grants, which were funded via a grant from the Howard Hughes Medical Institute to EMBO for the support of scientists in Central European EMBC Member States.

The grants, which provide financial support for young group leaders establishing their independent laboratories, are funded by the Czech Republic, Estonia, Poland, Portugal and Turkey, the five states of the EMBC that participate in this project. Each Installation Grantee receives 50,000 euros annually for three to five years from their

host country in addition to their regular institutional funding. They are also entitled to participation in networking opportunities and practical support through the EMBO Young Investigator network.

## A view from two participating countries

“The scheme was designed to help scientifically less developed countries to gain an edge for their young talents,” explains EMBO Council Member and EMBC delegate Claudio Sunkel from the University of Porto, Portugal, who was elected as Chair of the Strategic Development Installation Grants Board at the meeting in Warsaw during which the decision to launch these grants was made.

“These countries have good people,” adds Maciej Zylicz, International Institute of Molecular and Cell Biology, Warsaw, Poland and President of the Polish Science Foundation, who served on EMBO Council and as Polish EMBC delegate in 2006. “But with the overall success rate of the EMBO Young Investigator Programme being relatively low, they don’t get into the programme.

This gave us the idea to have separate grants for young group leaders that are paid directly by these countries.”

Another factor that drove the decision was the difficulty for researchers to set up independent groups. Zylicz refers to it as “the problematic stage”.

Both he and Sunkel believe that the Installation Grants scheme has been a success for their countries. Zylicz cites both the flexibility of the grant and the prestige associated with an EMBO scheme as the main advantages. “Host institutions in general have been extremely receptive – the EMBO stamp of approval is very important for setting standards,” echoes Sunkel.

“The most common experience [the grantees] mention to is the ability to integrate within the EMBO network,” he continues. In his experience Installation Grantees often “refer to the involvement with the European scientific community and networks of excellence. What appears to have lasted is indeed the sense of belonging to a European scientific system.”

# Preprint quality control

If we want to share results in a reproducible and discoverable manner, both quality control and curation should become part of the preprint process, argues EMBO Head of Scientific Publications, Bernd Pulverer.

The European Commission has taken the bold step to proclaim a Europe that is by 2020 to be 'Open Innovation', 'Open Science' and 'Open to the World'. It is crucial to face up to a key issue: the question of trust in and quality of data shared through Open Science mechanisms.

Clearly, a 24/7 release of raw data by all labs will rapidly clog up even the most well-resourced repositories, while – in that form – providing only limited benefit to the community. Without the provision of stable, structured databases and repositories that are curated and quality-controlled, we risk sinking in a swamp of data.

Preprints ought to play a key part in any Open Science agenda as a bridge between data and research papers, and they are poised to be accepted as a community standard in the biosciences. Now is the time to establish mechanisms that ensure we select for rigorous results that are associated with sufficient metadata to render them reproducible and discoverable.

## Curation is key to discoverability

Key to the success of preprints is ease and speed of submission. As their volume increases, we need to find scalable ways to integrate quality control steps that reinforce the rigor and utility of the science shared, while posing minimal friction for researchers. This is an opportunity to go beyond what the average scientific journal can muster by fortifying new authoring tools with templated methods sections that allow the reporting of materials and methods in a structured, machine-readable way.

The data presented in figures and tables represent the core of the scientific evidence in a manuscript. The level of confidence a reader

has in non-peer reviewed scientific work will be reinforced if preprints can be linked to each other and to published research papers via the experimental results shown in figures. For example, the EMBO SourceData platform turns figures and their legends into searchable machine-readable metadata that describe the design of the reported experiments. Interlinking the data presented in figures helps users to place a given preprint in the context of related data.

At the same time, such carefully curated figures are directly discoverable by data-directed search technology. It will be crucial to enable researchers to interrogate the published literature for specific experiments including the associated data, materials and methods.

## Quality control: how and by whom?

There are three aspects to the assessment of the quality of preprints:

1. Are the experiments reported in a way that allows their interpretation and replication? Is the preprint marred by problems such as image manipulation or sub-par statistics?
2. Are the experiments carried out robustly, allowing meaningful interpretation?
3. Are the experiments reported valuable to the research community? Do they warrant preservation, curation and dissemination?

The current assessment of preprints does not cover any of these. We need to decide which of these assessments should be implemented, and which would be desirable. Ideally, we would find a scalable way to systematically apply all three levels, but who would take on these responsibilities?

Curation and quality control of the data can be executed optimally as an integrated workflow

by quality checkers, be they editors, curators or researchers, who are assisted by state-of-the-art automation.

Screening for work that is meaningful and valuable to the community (points 2 and 3) will have to be done by knowledgeable experts. This might in principle include the pool of senior academics who review papers. However, we ought to tap into the pool of more junior researchers to avoid exacerbating the peer review bottleneck. There is a vast and highly capable community of experienced postdocs who would be well placed to carry out these tasks. A second group might be retired academics interested in staying engaged.

## Linking preprints and journals

Journals apply peer review and editorial assessment to submitted manuscripts. More progressive journals have started to apply more or less complex additional screening processes to complement peer-review. It is imperative to avoid redundancy in such screening processes. We therefore hope that the quality control and curation exercise can be applied to preprints at the point of their intersection with journals, such as the simultaneous submission for publication when posting a preprint.

But of course not all preprints need be destined for journal publication, so ultimately the screens outlined here should be applied to all preprints systematically. Once the issues of quality control, reproducibility and discoverability are addressed in preprints, they will also be applied to the published journal paper. In other words, a central quality-controlled preprint server can play an important role in improving the journal literature.

Regardless of the mechanisms through which curation and quality control will be applied to preprints, there will be a need for appropriate resources to run such undertakings in a sustainable manner.

The full version of this Commentary is available at [asapbio.org/pulverer-qc](https://asapbio.org/pulverer-qc)

# Towards fair evaluation of researchers

Declaration on Research Assessment relaunched to bring about change

Five years ago, a small group of editors, academic publishers, scientific societies and heads of research institutions announced the San Francisco Declaration on Research Assessment (DORA), at the heart of which lies the commitment to reduce and, where possible abolish, the use of the Journal Impact Factor (JIF) as a measure for scientific output and the success of individuals.

Since then, the declaration has been signed by thousands of individuals and hundreds of organizations (including major universities, funders and publishers, including, recently, all UK Research Councils and the journal *Nature*).

However, much remains to be done to change research assessment practices.

With this in mind, EMBO, together with the American Society for Cell Biology, Cancer Research UK, the Company of Biologists, eLife, F1000, Hindawi, PLOS, and Wellcome, have decided to relaunch DORA to intensify the efforts to bring about fair evaluation of researchers.

"With funding and in-kind support from [these organizations] we have been able to hire a Community Manager who will be dedicated to coordinating efforts," writes Chair of the newly formed steering committee, Stephen Curry of Imperial College London on the new DORA website. EMBO will act as the European node

for DORA. EMBO Head of Scientific Publications Bernd Pulverer is part of the steering committee, and Helen Sitar from the EMBO Science Policy Programme provides staff resource for the node's activities.

"As well as raising DORA's profile, a major task will be to help individuals and institutions bring about real change in research assessment practices," he adds. "We need to encourage people to think more broadly about assessment and provide them the tools to do so."





Left to right: EMBO Young Investigator Annika Guse, Jonas Ries, Pedro Beltrao, Jill Rowe and EMBO Member Michael Boutros contributed to the debate on ERC grants during the panel discussion chaired by Maria Leptin.

## ERC Scientific Council meets in Heidelberg

EMBL and EMBO host panel discussion of ERC grants

**E**MBL and EMBO hosted the European Research Council's (ERC) Scientific Council in Heidelberg between 28 February and 2 March. It was the Scientific Council's first plenary meeting in Germany since the launch of the ERC in Berlin in 2007.

More than 20 ERC Council members, including EMBO Members Eva Kondorosi, Paola Bovolenta, Margaret Buckingham, Giulio Superti-Furga, Nektarios Tavernarakis, Janet Thornton and Isabelle Vernos, joined ERC President, Jean-Pierre Bourguignon, to discuss topics of strategic importance for the funding body.

As part of the meeting, ERC Council members had an opportunity to meet with life scientists and ERC grantees from Heidelberg and the surrounding areas at a formal dinner. In addition, ERC representatives took part in two roundtable discussions.

### How can the ERC improve?

The European Commission and the ERC are always seeking to improve in ways that make its funding schemes most relevant and useful to the scientific community. To do so, they seek and offer opportunities for researchers to provide feedback as well as potential solutions. The topics the workshop in Heidelberg focused on were the ERC



EMBO Director Maria Leptin and ERC President Jean-Pierre Bourguignon at the formal evening reception in Heidelberg.

grant application process and the available grant formats, as seen from a life sciences perspective.

In his opening remarks, Jean-Pierre Bourguignon commented on the importance of taking care of the unique ERC set-up in which many decisions are left to the Scientific Council and the value the Council puts on having the community on its side.

One of the areas for discussion he highlighted was the decline in the proportion of overall ERC funds allocated to the life sciences over the last four years. This is the result of a change in 2014 that means that funds are now allocated to the three domains, Life Sciences (LS), Physical Sciences and Engineering (PE) and Social Sciences and Humanities (PH), in proportion to the overall budget applied for (which is roughly proportional to the number of applications).

"If you look at the evolution of applications, one area where it has stayed the same is the life sciences," said Bourguignon in reference to the proportional reduction in life science funds available. "I asked many biologists and got many answers, but we are still not sure what the reason behind that is. We want to get insight from you how we can improve and counteract that trend in applications."

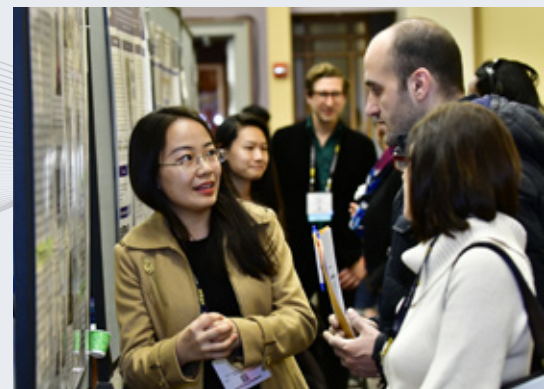
EMBO Director Maria Leptin and Director of the EMBL-EBI Ewan Birney chaired the two panels. The topics discussed ranged from dealing with interdisciplinary project proposals and the importance of mentoring from successful ERC grantees to the importance of having the right people on evaluation panels and the differences in application rates between panels.



## The ASCB | EMBO Meeting: a truly international endeavour

Nearly 7,000 delegates gathered in Philadelphia, USA, at the first joint ASCB | EMBO Meeting that took place between 2 and 6 December 2017. The five-day meeting included poster sessions featuring more than 2,500 posters, six major symposia, 25 mini symposia and many other sessions. EMBO Member Laura Machesky from the Beatson Institute for Cancer Research, Glasgow, UK, and Tobias Walther from the Harvard Medical School, Boston, USA, represented EMBO and the ASCB, respectively, as programme chairs. On these pages, EMBO Encounters provides some impressions from this international meeting.

Poster sessions stimulated numerous discussions (top). Andrea Leibfried, Life Science Alliance Executive Editor, introduced the new journal at the EMBO booth (bottom).



### Open Science at the ASCB | EMBO Meeting

How can the data produced in the biomedical and life sciences be turned into a readily discoverable and open resource? At the 2017 ASCB | EMBO Meeting, a session chaired by Bernd Pulverer, Head of Scientific Publications at EMBO, dealt with institutional, technical and cultural obstacles to Open Science and the means to overcome these obstacles.

Jason Swedlow, co-founder of the Open Microscopy Environment (OME), explained that image data formats were particularly diverse, and that effective open tools were essential for establishing image data standards. However, progress in technologies rapidly made such standards obsolete. Guidelines would thus be more useful, argued Swedlow.

Thomas Lemberger, EMBO SourceData project lead, discussed how SourceData bridges publishing and Open Science by providing an open platform that improves the discoverability of published data. He explained that the platform was designed to connect related data across papers and to provide applications that can be embedded in papers to make data directly accessible, inter-linked and browsable. "Ensuring data availability and quality should be a responsibility distributed across researchers, institutions and journals," he said.

#### Overflow impacts research integrity

Laura Machesky, Beatson Institute for Cancer Research in Glasgow and scientific co-organizer of the ASCB | EMBO Meeting, pointed out an interview-based study on the data flood in science and its implications for trust (doi: eLife.10825). The study found a decline in trust in the scientific enterprise, in large parts because the quantity of new data exceeds the field's ability to process it. This effect, termed overflow, negatively impacted integrity in research and its communication. "More science needs to be reviewed than trusted scientists in a competitive environment can handle," said Machesky. Preprints and new technologies could help to speed up dissemination of information, and post-publication peer-review might depressurize the system.

Jessica Polka, ASAPbio Director, agreed that preprints are most effective in making research results available immediately. Funders increasingly consider preprints as evidence for productivity in the selection of grantees. Preprints have even become a marketplace for journal editors to find papers to solicit for their journals, and feedback on preprints may begin to inform journal decisions, Polka said. She raised the question whether peer review should be moved into the open, too, in order to scale up quality control.

#### Interventions that work on the ground

Jeremy Freeman released tools and data from his lab at the Janelia Farms HHMI campus in real-time before he became Manager for

Computational Biology at the Chan Zuckerberg Initiative. Many heads nodded in the room when he said that multiple labs were not only reinventing the same research, but were generating incompatible data sets. Freeman stressed that simultaneously addressing both social and policy aspects as well as technical aspects were crucial for achieving Open Science. "We need interventions which work on the ground," he said.

Michael Huerta, Associate Director of the US National Library of Medicine and Coordinator of Data and Open Science Initiatives, reminded the audience of the 'FAIR' guiding principles for scientific data management and stewardship: the findability, accessibility, interoperability, and reusability of data must be considered when improving the infrastructure supporting the reuse of scholarly data. Huerta advised that funders and publishers should focus on the value created for the relevant communities when taking decisions on data management resources. Nevertheless, there were more players than funders and publishers. "Everyone can contribute. It is best to start with domains in science where there is already an interest," Huerta said.

Bernd Pulverer closed the session with a call for more systematic approaches in the way science is communicated and for efficient access to all meaningful research outputs. "It is time to turn the tide."





Left to right: Stanford University Professor Kang Sheng, EMBO Director Maria Leptin, Head of the Chan Zuckerberg Science Initiative Cori Bargmann, ASCB President Pietro de Camilli and ASCB Chief Executive Erika Shugart.



Nearly 7,000 scientists gathered in Philadelphia for the meeting (top). Sam KrahI delivered a set of workshops based on the EMBO Lab Leadership courses (right).



“Having programme chairs from both ASCB and EMBO has expanded the program committee’s scientific perspective and increased the geographic representation of speakers. The programming on career enhancement and policy topics, such as open science, has been enriched because we can share best practices and insights. Science is truly a global endeavour and this partnership reflects ASCB’s commitment to collaboration across borders. We look forward to continuing this successful partnership with EMBO,” said Shugart after the event.



From cellular structure and interactions to metabolism and DNA biology - the scientific programme at the conference covered all angles of cellular and molecular biology. In addition to six symposia, participants had the choice between 25 mini symposia on specialist subjects. Poster sessions, career enhancement opportunities, exhibitor talks and special lectures such as the EMBO Gold Medal and Louis-Jeantet Prize lectures rounded off the programme.

# Facts & Figures

## An overview of EMBO activities in 2017

Through its programmes and activities, EMBO supports researchers at all career stages, stimulates the exchange of scientific information, and helps to build a European research environment where scientists can achieve their best work.

The organization's Facts & Figures report, which is published each year, summarises the work carried out in all of these areas to promote, foster and recognize excellence in the life sciences. These pages illustrate some of the highlights of EMBO's activities throughout 2017.

## 28 new Young Investigators

- 492 group leaders have joined the Young Investigator Programme since its launch
- 8 Installation Grantees selected, who became part of the network

The Young Investigator Programme identifies and supports some of the best young group leaders in the life sciences. Installation Grants specifically support young group leaders in six participating EMBC Member States.

## 65 new members

- 21 countries in which new members reside
- 1700+ scientists make up the EMBO Membership

New members are nominated and elected by the membership annually. Election is recognition of research excellence in the life sciences.

## 91 courses and workshops

- 11,000+ attendees at these scientific events
- 46 keynote lectures delivered by EMBO Members

Through the Courses & Workshops Programme, EMBO supports and encourages the sharing of scientific knowledge and skills.

## 475 new fellows

- 189 Long-Term Fellowships and 5 Advanced Fellowships
- 281 Short-Term Fellowships

EMBO Long-Term Fellowships fund postdoctoral research for up to two years; Advanced Fellowships offer an additional two years of funding. Short-Term Fellowships fund research exchanges of up to three months.

## 4 scientific publications

- 1 million article downloads across EMBO Press
- ALPSP Award for Innovation in Publishing for SourceData

EMBO Press publishes *The EMBO Journal*, *EMBO Reports*, *EMBO Molecular Medicine* and *Molecular Systems Biology*, and aims to shape best practice in scientific publishing.



## 2 science policy workshops organised

- 40+ policy meetings attended by EMBO staff
- 5 workshops on research integrity at institutes in EMBC Member States

The Science Policy Programme provides informed analyses to policymakers, administrators and scientists in the areas of research integrity, scientific publishing and biotechnology and genomic technologies.

## 42 Lab Leadership courses

- 4 types of courses offered
- 9 countries in which training was delivered

The EMBO subsidiary Gesellschaft zur Förderung der Lebenswissenschaften Heidelberg GmbH delivers training to life scientists worldwide on topics including leadership, self-leadership and negotiation.

## 4 global cooperation agreements in place

- 1 new partnership with Chile's National Commission for Scientific and Technological Research
- 1 event marking the partnership with the Taiwanese Ministry of Science and Technology

EMBO Global Activities help to establish long-lasting cooperation worldwide through scientific exchange and support for researchers.

## 8 committees and boards

- 15 members on Council
- 76 members on boards and committees

EMBO Council oversees the organization's activities and directs its future development. Through serving on boards and committees, EMBO Members deliver and guide the organization's activities.

## 2 awards

- EMBO Gold Medal for Maya Schuldiner
- FEBS | EMBO Women in Science Award for Ottoline Leyser

The EMBO Gold Medal is awarded to young scientists for exceptional contributions to the life sciences in Europe. The FEBS | EMBO Women in Science Award recognizes outstanding achievements of female life scientists.

## 29 EMBC Member States

- 20 million euros budget for EMBO Programmes
- 60 EMBC delegates and advisers

The EMBC is the intergovernmental body that funds EMBO. Each EMBC Member State typically appoints one delegate from a government ministry and one scientific adviser. In 2019, the EMBC will celebrate its 50th anniversary.





## Behind the scenes of EMBO events

The EMBO Courses & Workshops Programme funds more than 90 events with over 11,000 participants a year. But what is the best way to put together an application, and what is it like to organize an EMBO event?

By Kathy Weston

Each year, the EMBO Courses & Workshops Committee considers around 170 proposals, and funds more than half of them, based on three overarching criteria: an exciting and timely topic that isn't being covered elsewhere; 30% or more female speakers; and timetabling of extensive networking opportunities. If the application is for a repeat meeting, good participant feedback is also important.

The meeting format is not standardized: "If you have an idea for a meeting, get in touch, especially if it's something a little out of the ordinary," says Courses & Workshops Programme Manager Gerlind Wallon. "We welcome people calling in advance, and we pride ourselves on being flexible if we need to be."

As a not-for-profit organization, EMBO funds meetings on the understanding that registration fees will be capped; the aim is to enhance European science and enable the best scientists to attend, rather than to make money. With the final cost for practical courses often being higher than the 37,000 euros funding limit, the registration fee cap means that organizers generally have to find additional funding. However, most organizers report little difficulty in finding other support, due to the prestige of being associated with a meeting carrying EMBO's stamp of approval.

It is undeniably a lot of work to prepare an application, especially as one of the main requirements is that the majority of speakers must have accepted. "Anyone can put together a wish list," explains Wallon, "but you need to be able to guarantee most of the speakers are going to come."

Potential workshop applicants put off by the possibility of rejection should note, however, that in almost three-quarters of cases, those who are unsuccessful manage to run their meetings anyway; the depth of advance planning means that it's

## EMBO Courses & Workshops at a glance

- EMBO funds Workshops, Practical Courses, Global Exchange Lecture Courses, EMBO | FEBS Lecture Courses, India | EMBO Symposia.
- A maximum of 37,000 euros is available per event.
- Meetings must be held in EMBO Member or Associate Member States, or in countries and territories covered by a co operation agreement
- Organisers can be drawn from anywhere in the world.

easy to reformat and resubmit the application elsewhere.

### How applications are assessed

The ten members of the Courses & Workshops Committee have the shared expertise to cover the 21 life science categories under which applications can be submitted. Prior to committee meetings, each proposal is assigned to two committee members for detailed review and scoring. Those that score very well are only briefly discussed; those that score poorly can be rescued if a committee member makes a strong case for them. Deciding which of the rest to fund forms the core activity of the meeting, and typically, this means discussing 50-60 applications.

There is no quota for different types of events, says Committee Chair Christian Lehner, University of Zürich, Switzerland. However, applications for workshops have increased relative to practical courses, which Lehner regrets. "I hope it's not a continuing trend," he says, "as it's hard to get practical courses funded by any other



Networking at an EMBO conference

method than EMBO, and we want to continue to spread novel methods rapidly around European labs.”

Although the committee takes great pains to avoid subject area bias, incoming applications are themselves biased towards certain fields. Lehner would like to see more submissions in plant biology, immunology, ecology and evolution, and particularly in molecular medicine: “EMBO welcomes proposals where medical research and molecular biology really meet,” he says.

### What makes a strong application

How can organizers make their application stand out? The topic is crucial, and it pays off to invest time in clearly explaining the science to convince everyone on the committee of its importance. It's also important to put some thought into a good title: “Don't call your meeting something like ‘The Corfu Conference on X’,” Lehner jokes, “as

it looks as though you like the place more than the science!”

The meeting must stand out in comparison to similar meetings: “If you want to propose a cancer conference for example, you have to explain why there has to be yet another cancer conference,” Lehner says. “What is unique about your proposal?”

The speaker list must adequately represent the exciting work in the field: “You do need some superstars but there should be good representation of starting researchers as well,” comments Lehner, adding that the scientific logic of the programme must also be clear: “It's important to think about why you have particular sessions and how they come together as a cohesive whole.”

EMBO takes the value of the meeting to junior researchers very seriously, and this includes providing easy opportunities for them to interact intensively with the invited speakers or teachers. Lehner underlines that the more opportunities

there are for participants to meet speakers and each other, the better: “Poster sessions mustn't be crammed into coffee breaks in tiny stuffy rooms,” he says. “And we definitely favour housing participants and invited speakers at the same location – parceling people out between many different hotels and making it hard to travel to and from the conference centre is not good.”

In the end, as long as the principal selection criteria are met, what really helps to get an application funded is attention to detail: “It pays to start planning your application reasonably early so you can get everything sorted out,” says Lehner. “If you can't show you're organized enough to produce a decent application, you probably won't convince the committee you can organize a meeting!”

[embo.org/funding-awards/courses-workshops](http://embo.org/funding-awards/courses-workshops)

## Tips and tricks from the organizers

### Carsten Janke, Institut

Curie, Paris, France, organizes the biennial EMBO Conference ‘Microtubules: structure, regulation and functions’, held in Heidelberg, since 2010. He has also organized EMBO meetings in India and Chile.



### What motivated you to start the microtubule conference?

There was no conference where people who worked on microtubules in different fields could come together – there were so many interesting aspects that never got discussed, so I thought it was worth a try. And it's worked very well, partly because it's run at the Advanced Training Centre at EMBL in Heidelberg, which is a great venue with extremely good support from the EMBL Course and Conference Office.

### How do you keep the speaker list fresh?

We have a rule that we don't invite people twice, and we try to make some unexpected choices. My co-organizers and I try to figure out who has an interesting unpublished story and can give a great talk by searching the literature and asking around. We also have a lot of short talks selected from abstracts and they're always really exciting.

### What is your top tip for organizers?

Don't be afraid of proposing a conference around a more conceptual idea where you can invite people from completely diverse fields. And treat your speakers as you would like to be treated; don't rely only on your administrators to send emails – keep some personal contact if possible.

### Madalena Tarsounas,

University of Oxford, UK, and her co-organizers Steve Jackson and Thanos Halazonetis have run the biennial EMBO Conference ‘The DNA Damage Response in Cell Physiology and Disease’ since its inception in 2011.



### Your meeting is held at a beautiful resort near Athens – how did that come about?

My co-organizers and I took a trip to Greece and visited four different resorts. It was very important to go and see for ourselves and talk to the people at each place. We decided on the Grecotel Cape Sounio and we've been going there ever since. It's only one hour away from Athens international airport, but it's isolated and therefore ideal for networking – we take up the entire resort with 150 participants, so everyone you meet is a DNA damage person. And of course it's an extraordinary location.

Every year, the feedback is that this place makes interactions very easy. People are friendlier and happier – it's warm and sunny and the food is excellent, and everyone relaxes and can be themselves. We never have a problem with speakers leaving early, and we never have a problem with getting new speakers – everyone always says yes!

### What is your top tip for organizers?

Make sure you have a local organizer if you're going somewhere off the beaten track; and learn to delegate, but remember that it's often far less time consuming to do the complicated things yourself!

### Fritjof Helmchen, University

of Zürich, Switzerland, set up the EMBO Practical Course ‘Two-photon imaging of brain dynamics: Illuminating neuronal and glial function’ with co-organizer Arthur Konnerth.



### Running this course must be a huge amount of work; why do you do it?

I see it as an opportunity to get to know the people who are pushing into the field and are excellent, and perhaps to find some recruits for my lab. It's also beneficial for the people in our two labs who help run the practicals – it's an opportunity to see how another lab does things, and it gives them visibility in the field.

To be honest though, the main reason I do it is that overall it's a lot of fun! I like the networking and social aspects, and actually running the course is almost like teaching yourself again and finding out whether you can convey both your knowledge and also the technology of the microscopes.

### What is your top tip for organizers?

Look after all your students. You'll always have a mix of people and those who are more reserved may need to be approached and encouraged. And you may have to do a little social engineering during the course. You can group people together beforehand from the information in their applications, but if it doesn't work you have to change it.

## “Every question begins with SUMO”

Frauke Melchior receives the 2018 FEBS | EMBO Women in Science Award on her work on the small ubiquitin-like modifier



© Sabine Arndt

**F**rauke Melchior has been awarded the FEBS | EMBO Women in Science Award 2018 for discovering a link between the small ubiquitin-like modifier (SUMO), oxidative stress and DNA damage with implications for developing cancer chemotherapeutic approaches. The award also recognizes her generosity in guiding and mentoring young researchers and sharing protocols and reagents with the scientific community.

Anne Dejean of the Institut Pasteur in Paris, France, a research colleague in the SUMO field, says: “Frauke Melchior is an exceptional scientist. She discovered SUMOylation and promoted the field through key findings, seminal reviews, methods development, dissemination of protocols and reagents, as well as teaching and mentoring the next generation of scientists.”

Since discovering SUMOylation 20 years ago, Melchior, who is a Professor of Molecular Biology at the Center for Molecular Biology (ZMBH) at Heidelberg University, Germany, has shaped research on post-translational modification with SUMO. In the following interview she tells the story of how SUMO became the centre of her research and talks about sharing her experience with the next generation of scientists.

Frauke Melchior will present a plenary lecture and receive the prize of 10,000 euros and a bronze statuette on 9 July 2018 at this year's FEBS Congress in Prague, Czech Republic.

**You received this award for your research on SUMO. How did it become the focus of your work?**

I started out studying chemistry and changed research topics multiple times in my scientific life. During my first postdoc I worked on fission yeast to discover a protein family that didn't actually exist. But this project got me interested in nucleo-cytoplasmic trafficking. So I picked my second

postdoc to find out whether there are GTPases in nucleo-cytoplasmic transport.

Indeed, I found the GTPase Ran, and I initially thought that this was what I could build an independent career on. But it turned out quickly that there were many labs interested in it, and there was no way I could have competed.

Luckily, I stumbled upon SUMOylation when looking more closely at Ran and its regulator, the Ran GTPase Activating Protein. And I just knew that this was something I could take with me and build my career on. I had time before the community realized how exciting, interesting and widespread it is.

SUMOylation is now at the centre of my lab's work – every question begins with SUMO! But looking at different proteins and enzymes drags us into many different corners. What I really love about it is being able to follow the science where it leads me.

**The award also recognizes your mentoring activities. What advice do you like to share?**

I strongly value listening to and reading about science outside your immediate field. So I tell my students to go to all the seminars. In part this has to do with my own discovery of SUMO. At some point I noticed the very weak similarity to ubiquitin, and I would not have realized the significance had I not known something about what ubiquitin does and how to study it.

Career-wise I would also say that it's very important to find a postdoctoral supervisor who is generous enough to let you grow beside him or her. Because postdocs need to find a topic that they can take with them.

My postdoc supervisor Larry Gerace (The Scripps Research Institute, La Jolla, USA) was incredibly supportive right from the start. He sent me to meetings on his behalf. He even fought

with meeting organisers to let me speak instead of him. He was also extremely generous to let me publish as last author and to take the SUMO project with me to set up my own research group.

**What do you think about formal mentoring schemes?**

I have, over the years, taken part in several mentoring programmes, either dedicated specifically to women in science or to young investigators. It's something I enjoy doing, but I don't think they should be mandatory.

Instead it's important that we all learn to ask for advice when we need it. I've been surprised how frequently both women and men are not asking for advice at the right moment – and that's a pity! I think we have to think of ways to encourage and empower people to ask for advice.

**What does receiving the award mean to you?**

It is a wonderful honour and great motivation to receive this award. I particularly value the combined recognition for my scientific discoveries and my work in mentoring and supporting younger scientists.

It can be a tough challenge to engage in all the activities that are necessary and, at the same time, to keep up the scientific standard. At this stage of my career it tells me that I have been doing something right in trying to combine these different aspects into my work as a scientist.

[embo.org/funding-awards/women-in-science-award](http://embo.org/funding-awards/women-in-science-award)

Nominations for the 2019 award will be accepted until 1 October 2018.



# Two life science resources developed at Vienna BioCenter

The research group around EMBO Member Josef Penninger at the Institute of Molecular Biotechnology (IMBA) at the Vienna BioCenter, Austria has developed two new resources for the life science community.

The first, called Haplobank, is a biobank of revertible, mutant embryonic stem cells. It contains over 100,000 mutated, conditional mouse embryonic stem cell lines, in which approximately 70% of the protein-coding genome has been targeted. The team developed the resources with a view to addressing issues of reproducibility, such as experiments with the same cell line yielding different results in different laboratories. Because mutations can be repaired in single cells and at the whole genome scale, Haplobank aims to overcome issues arising from clonal variability.

"Because gene knockouts can be repaired in our embryonic stem clones, this resource enables well-controlled, robust and reproducible validation experiments," explains Penninger. "We feel this is a critical point and contribution,

given the current efforts to improve the rigor of scientific research."

The second resource is a comparative glycoproteomics platform that enables global insights into protein glycosylation and glycan modifications in biological systems. It is called SugarQb, for Sugar Quantitative Biology.

Penninger's group developed mass-spectrometry methods and algorithms that enable both the comprehensive identification of complex sugar structures and their mapping to sites within the corresponding proteins. The group has made the resource freely available with the aim of allowing researchers to study glycosylation at the proteome scale.

## More information

Haplobank: Doi: 10.1038/nature24027; haplobank.at/e-commerce/control/main

SugarQb: Doi: 10.1038/nature24015; omictools.com/sugarqb-tool



Haplobank contains over 100,000 mutated, conditional mouse embryonic stem cell lines, targeting about 70% of the protein-coding genome.

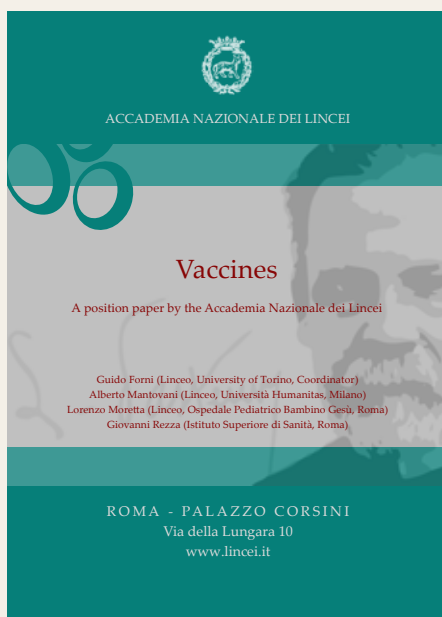
© Izabella Kaminski

# Italian members contribute to report on vaccines

EMBO Members Alberto Mantovani (Milan, Italy) and Lorenzo Moretta (Rome, Italy) together with Guido Forni (Turin, Italy) and Giovanni Rezza (Rome, Italy) are the authors of a report published by the Italian Academy of Sciences titled 'Vaccines – A position paper by the Accademia Nazionale dei Lincei'.

Vaccine coverage in Italy underwent a steady decrease in the last few years, resulting in the reappearance of infectious diseases that were largely eradicated, explains Alberto Mantovani. "For example, last year we had approximately 5,000 cases of measles with 5 deaths and 40% hospital admissions."

With the House of Parliament having passed a legislation making vaccination mandatory and vaccines coming under fierce attack, the Accademia dei Lincei felt it was its duty to provide the public and the Italian administration with a digest of the current state, explains Mantovani. "The aim was to provide the public debate with the knowledge tools based on science on vaccines."



The report was developed by a team working in the fields of immunology, immunity and public health, under the supervision of EMBO Member Maurizio Brunori.

An English language version of the report is available online: [www.lincci.it/files/documenti/doc\\_vaccines\\_EN\\_5dic2017.pdf](http://www.lincci.it/files/documenti/doc_vaccines_EN_5dic2017.pdf)

# Celebrating John Kendrew's 100th anniversary

John Kendrew was one of the co-founders of EMBO and EMBL, and became EMBL's first Secretary General. In 2017, he would have celebrated his 100th birthday. To mark the occasion, EMBL organised a special symposium that took place in Heidelberg on 16 and 17 November 2017.

Titled "Revolutions in Structural Biology" the meeting brought together experts in many different aspects of structural biology techniques, such as X-ray crystallography, electron microscopy and computational modeling.

Among the speakers, were Richard Henderson, MRC Laboratory of Molecular Biology, Cambridge, UK, and Jacques Dubochet, University of Lausanne, Switzerland. Both are also EMBO Members and had just been awarded the 2017 Nobel Prize in Chemistry, together with Joachim Frank from Columbia University, New York, USA, for their development of cryo-electron microscopy.



The team of researchers at KEEP.

© KAUST

## Establishing epigenetics research at KAUST

**E**MBO Member Valerio Orlando heads the KAUST Environmental Epigenetics Program (KEEP) at the King Abdullah University of Science and Technology (KAUST) in Thuwal, Jeddah, Saudi Arabia. The scientists at KEEP investigate genome function in response to changes in the environment and effects on phenotypes, ranging from the local cellular environment to demanding organismal conditions.

The goals are ambitious: KAUST encompasses around 200 faculty members, and approximately

10,000 people are living on its modern campus. The KEEP program strives to be at the forefront of epigenetics research. “With its multi-disciplinary resources and a collaborative environment, it is working to gather scientists who share concepts and technologies in a diverse manner, no matter what model systems – all driven by fundamental scientific questions,” Orlando says.

Last year, the first KAUST research conference on environmental epigenetics marked a strategic partnership between the Center for Epigenetics and Metabolism of the University of California,

Irvine, USA, and KEEP. Further collaborations link KEEP to the Salk Institute and New York University in the USA, RIKEN in Japan, and several institutions in Europe. So far, KEEP consists of six laboratories with senior and junior faculty, who have arrived from scientific institutes across the world.

[keep.kaust.edu.sa](http://keep.kaust.edu.sa)

### BOOK REVIEW

## The Personalized Diet

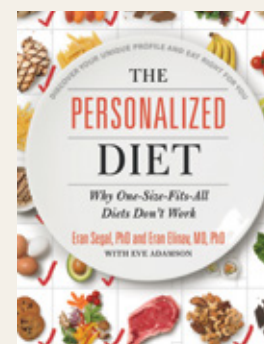
What if we told you that some of the things you believed about diets, healthy eating and weight loss were not categorically true? This is how EMBO Members Eran Segal and Eran Elinav begin their book *The Personalized Diet – Why One-Size-Fits-All Diets Don't Work*.

Using knowledge gained from their own research into how clinical parameters and the microbiome influences people's responses to different foods, Segal and Elinav, who wrote the book with support from writer Eve Adamson, explain how people can create a personalized diet by looking at the way an individual's blood sugar levels respond to nutrition.

“Our motivation was to bring the insights and results that arose from our six years of

research to a broader audience,” explains Segal. “The book includes a practical component that we believe people can use in order to measure themselves and improve their diets and learn what is personally healthy for them.”

The book is aimed at a broad readership with an interest, but not necessarily a background, in science and nutrition. It includes an introduction to diet, blood sugar and metabolism, a summary and explanation of Segal and Elinav's findings, as well as a description of how anyone can measure their blood sugar to understand their individual responses to different foods.



### The Personalized Diet – Why One-Size-Fits-All Diets Don't Work

Eran Segal and Eran Elinav with Eve Adamson

Grand Central Life & Style | 2017

[thepersonalizeddiet.com/](http://thepersonalizeddiet.com/)

ISBN: 978-1478918806



## Awards of Excellence

### EMBO MEMBERS

#### Louis-Jeantet Prize for Medicine

**Christer Betsholtz**, Karolinska Institute and Uppsala University, Sweden, and **Antonio Lanzavecchia**, Institute for Research in Biomedicine and University of Lugano, received the 2018 Louis-Jeantet Prize for Medicine. Betsholtz receives the award for the characterisation of pericytes and their role in vascular development and permeability. Lanzavecchia is recognized for his contributions to our understanding of the human immune response to infection and its application to vaccinology. Each receives 700,000 Swiss francs, of which 625,000 Swiss francs should be used to finance ongoing research.

#### L'ORÉAL-UNESCO For Women in Science Award

**Caroline Dean**, John Innes Centre, Norwich, UK, has been named as one of five recipients of the 2018 L'Oréal-UNESCO For Women in Science awards. She received the honour for her groundbreaking research on how plants adapt to their surroundings and changes in climate, which is leading to new ways for crop improvement. The prize is endowed with 100,000 euros prize money.

#### HFSP Nakasone Award

**Svante Pääbo** of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany was awarded the 2018 Human Frontier Science Program Nakasone Award for his discovery of the extent to which hybridization with Neanderthals and Denisovans has shaped the evolution of modern humans, and his development of techniques for sequencing DNA from fossils. He will receive a research grant of 10,000 US dollars and a medal.

#### Heinrich Wieland Prize

The Boehringer Ingelheim Foundation has awarded the Heinrich Wieland Prize 2017 to **Alexander Varshavsky** from the California Institute of Technology, Pasadena, USA. Varshavsky received the award for his discovery of the biology of the ubiquitin system. The prize, which is endowed with 100,000 euros, honours outstanding research on biological molecules and systems in the fields of chemistry, biochemistry, and physiology.

#### UK New Year's Honours

Two EMBO Members were honoured in the British New Year's Honours list. **Robin Howard Lovell-Badge**, Francis Crick Institute, London, UK, became Commander of the Order of the British Empire for his services to genetics, stem cell research and the public understanding of science.

**Margaret Frame**, of the Edinburgh Cancer Research Centre, UK, was named Officer of the Order of the British Empire for services to cancer research.

#### Lelio Orci Award

The Lelio Orci Award 2017 has been awarded to **Michael Hall**, Biozentrum, University of Basel, Switzerland, for outstanding performance in fundamental cell biology research. The award is endowed with 10,000 Swiss francs.

#### GCHERA World Agriculture Prize

**Dirk Inzé**, VIB-UGent Center for Plant Systems Biology, Belgium, receives the 2017 GCHERA World Agriculture Prize. With this award the Global Confederation of Higher Education Associations for Agricultural and Life Sciences (GCHERA) recognizes his exceptional and significant lifetime

achievements in the field of agricultural and life sciences. Inzé receives a prize of 50,000 US dollars.

#### Mary Lyon Medal

**Sarah Teichmann**, Wellcome Sanger Institute, Cambridge, UK, received the Genetics Society's Mary Lyon Medal for her outstanding research in understanding how the immune system works by using genomics and bioinformatics approaches. The award was established in 2015 to honour scientists in the middle of their research career and includes an invitation to present an award lecture.

#### Genetics Society Medal

**Michael Bevan** of the John Innes Centre in Norwich, UK, has been awarded the Genetics Society Medal in recognition of outstanding research contributions to genetics. He has been invited to deliver a lecture at a Genetics Society meeting, where the medal will be awarded.

#### Mexico Prize for Science and Technology

The Mexican government has awarded the Mexico Prize for Science and Technology to **Angela Nieto** of the Institute of Neuroscience in Alicante, Spain. Nieto received the silver medal associated with the prize from the President of the United States of Mexico at an award ceremony in Mexico City.

#### Officer's Cross of the Order of Merit of the Federal Republic of Germany

**Karin Moelling**, Max Planck Institute of Molecular Genetics, Berlin, Germany, has received the Officer's Cross of the Order of Merit of the Federal Republic of Germany. She receives this honour

for the discoveries she has made during the course of her career, including her work on isolating oncogenes from retroviruses, the understanding of diseases like cancer and AIDS, and her efforts to communicate complex scientific facts to the general public.

#### Blavatnik Award

**M. Madan Babu**, MRC Laboratory of Molecular Biology, Cambridge, UK, has been named as the recipient of the Blavatnik Award for Young Scientists in the UK in the life science category. Awarded by The New York Academy of Sciences, the award honours outstanding young scientists under the age of 42. Babu has been recognized for his research into the structural biology and molecular logic of proteins and protein motifs, including G-protein coupled receptors.

#### Sanofi-Institut Pasteur International Award

**Antonio Lanzavecchia**, Institute for Research in Biomedicine, University of Lugano, Switzerland, is one of three recipients of the Sanofi-Institut Pasteur International Awards for his research on the role of human monoclonal antibodies in the fight against malaria.

#### Sjöberg Prize

**Anne Dejean**, Institut Pasteur and Inserm, Paris, France, and **Hugues de Thé**, Collège de France, Paris, France, together with **Zhu Chen**, Shanghai Jiao Tong University, China, have been awarded the Sjöberg Prize. They received recognition for the clarification of molecular mechanisms and the development of a revolutionary treatment for acute promyelocytic leukaemia. The prize, which is endowed with 1 million US dollars, is awarded by the Royal

Swedish Academy of Sciences and funded by the Sjöberg Foundation.

#### ISCB Innovator Award

The International Society for Computational Biology (ISCB) has awarded its 2018 Innovator Award to **M. Madan Babu** of the MRC Laboratory of Molecular Biology in Cambridge, UK. The award is given to a leading scientist who is within a decade and half of receiving her or his PhD degree, and has consistently made outstanding contributions to computational biology and continues to forge new directions.

#### Brain Prize

**Bart De Strooper**, KU Leuven, Belgium, and **University College London, UK, Michel Goedert**, MRC Laboratory of Molecular Biology, Cambridge, UK, **Christian Haass**, German Center for Neurodegenerative Diseases, Munich, Germany, and **John Hardy**, University College London, UK, received the 2018 Brain Prize for their groundbreaking research on the genetic and molecular basis of Alzheimer's disease. The prize, which is awarded by the Lundbeck Foundation in Denmark, is worth one million euros and recognises international scientists who have made an outstanding contribution to neuroscience.

### EMBO YOUNG INVESTIGATORS

#### Sanofi-Institut Pasteur National Junior Award

**François Leulier** from the Institute of Functional Genomics, Lyon, France, received one of two Sanofi-Institut Pasteur National Junior Award. He was rewarded with this honour for his research on the positive impact that some bacteria have on growth in situations of chronic undernutrition.

## Good Read – Publications from the EMBO community

#### Induced-Pluripotent-Stem-Cell-Derived Primitive Macrophages Provide a Platform for Modeling Tissue-Resident Macrophage Differentiation and Function

Florent Ginhoux (EMBO Young Investigator) and colleagues  
*Immunity* | 18 July 2017  
Doi: 10.1016/j.immuni.2017.06.017

#### Constraints and consequences of the emergence of amino acid repeats in eukaryotic proteins

M. Madan Babu (EMBO Member) and colleagues  
*Nature Structural and Molecular Biology* | 14 August 2017  
Doi: 10.1038/nsmb.3441

#### Polylox barcoding reveals haematopoietic stem cell fates realized in vivo

Hans-Reimer Rodewald (EMBO Member) and colleagues  
*Nature* | 16 August 2017  
Doi: 10.1038/nature23653

#### A microtubule-organizing center directing intracellular transport in the early mouse embryo

Nicholas Plachta (EMBO Young Investigator) and colleagues  
*Science* | 1 September 2017  
Doi: 10.1126/science.aam9335

#### Myofibril contraction and crosslinking drive nuclear movement to the periphery of skeletal muscle

Edgar Gomes (EMBO Installation Grantee), Michael Way (EMBO Member) and colleagues  
*Nature Cell Biology* | 11 September 2017  
Doi: 10.1038/ncb3605

#### Pathogen-specific B cell receptors drive chronic lymphocytic leukemia by light chain-dependent cross-reaction with autoantigens

Matteo Iannacone (EMBO Young Investigator) and colleagues  
*EMBO Molecular Medicine* | 12 September 2017  
Doi: 10.15252/emmm.201707732

#### Nesprin-1α-Dependent Microtubule Nucleation from the Nuclear Envelope via Akp450 Is Necessary for Nuclear Positioning in Muscle Cells.

Edgar Gomes (EMBO Installation Grantee) and colleagues  
*Current Biology* | 27 September 2017  
Doi: 10.1016/j.cub.2017.08.031

#### D-Alanylation of teichoic acids contributes to Lactobacillus plantarum-mediated Drosophila growth during chronic undernutrition

François Leulier (EMBO Young Investigator) and colleagues  
*Nature Microbiology* | 9 October 2017  
Doi: 10.1038/s41564-017-0038-x

#### The dynamics of molecular evolution over 60,000 generations

Richard Lenski (EMBO Associate Member) and colleagues  
*Nature* | 2 November 2017  
Doi: 10.1038/nature24287

#### Self-assembling peptide semiconductors

Ehud Gazit (EMBO Member) and colleagues  
*Science* | 17 November 2017  
Doi: 10.1126/science.aam9756

#### Visualization of modifications in the human ribosome structure, a new feat for cryo electron microscopy

Bruno Klaholz (former EMBO Young Investigator) and colleagues  
*Nature* | 23 November 2017  
Doi: 10.1038/nature24482

#### Spatial reconstruction of immune niches by combining photoactivatable reporters and scRNA-seq

Matteo Iannacone, Ido Amit (EMBO Young Investigators) and colleagues  
*Science* | 7 December 2017  
Doi: 10.1126/science.aao4277

#### Pharmacogenomics of GPCR Drug Targets

M. Madan Babu (EMBO Member) and colleagues  
*Cell* | 14 December 2017  
Doi: 10.1016/j.cell.2017.11.033

#### Distinct SoxB1 networks are required for naïve and primed pluripotency

Ian Chambers (EMBO Member) and colleagues  
*eLife* | 19 December 2017  
Doi: 10.7554/eLife.27746

#### Drosophila Perpetuates Nutritional Mutualism by Promoting the Fitness of Its Intestinal Symbiont Lactobacillus plantarum

François Leulier (EMBO Young Investigator) and colleagues  
*Cell Metabolism* | 26 December 2017  
Doi: 10.1016/j.cmet.2017.11.011



## Practical Courses

DK-Odense | 19–26 April 2018 | M.R. Larsen

**Characterisation of post-translational modifications in cellular signalling**

DE-Heidelberg | 23–30 April 2018 | J.E. González-Pastor

**Microbial metagenomics: A 360° approach**

GR-Heraklion | 6–17 May 2018 | A. Stamatakis

**Computational molecular evolution**

FR-Grenoble | 12–19 May 2018 | M. Marcia

**Characterisation of macromolecular complexes by integrative structural biology**

ES-Barcelona | 3–9 June 2018 | E. Bechara

**iCLIP: Genomic views of protein-RNA interactions**

DE-Würzburg | 12–22 June 2018 | C. Stigloher

**Advanced electron microscopy for cell biology**

DE-Heidelberg | 17–22 June 2018 | J. Krijgsveld

**Quantitative proteomics: Strategies and tools to probe biology**

PT-Oeiras | 30 June–8 July 2018 | G. Martins

**3D developmental imaging**

ES-Barcelona | 2–6 July 2018 | A. Bonvin

**Integrative modelling of biomolecular interactions**

DE-Dresden | 2–11 August 2018 | P. Tomancak

**Light sheet microscopy**

DE-Heidelberg | 26–31 August 2018 | H. Sapers

**Molecular geobiology**

BE-Bruxelles | 2–7 September 2018 | D. Fontaneto

**Microbial ecology: Hands-on training in prokaryotic and eukaryotic metagenomics (ICME-9)**

DE-Heidelberg | 2–10 September 2018 | C. Sachse

**Cryo-electron microscopy and 3D image processing methods**

DE-Hamburg | 10–18 September 2018 | C. Löw

**Membrane PEPC1 (Membrane Protein Expression Purification Characterization 1)**

UK-Bristol | 23–28 September 2018 | P. Verkade

**Correlative light electron microscopy**

PT-Faro | 24–29 September 2018 | T.M. Embley

**Tree building: Advanced concepts and practice of phylogenetic analysis**

LU-Luxembourg | 4–10 October 2018 | R. Krause

**Phenotyping neurological syndromes for systems genetics**

PT-Porto | 29 October–3 November 2018 | F. Silva

**Biomolecular interaction analysis 2018: From molecules to cells**

IT-Rome | 5–10 November 2018 | A. Via

**Computational analysis of protein-protein interactions: Sequences, networks and diseases**

ES-Barcelona | 11–16 November 2018 | E. Sabidó

**Targeted proteomics: Experimental design and data analysis**

DE-Hamburg | 19–26 November 2018 | D. Svergun

**Solution scattering from biological macromolecules**

## Workshops

PT-Troia | 1–6 May 2018 | S. Boulton

**Telomere biology in health and human disease**

IT-Naples | 6–9 May 2018 | R. Ricci

**Lysosomes and metabolism**

GR-Heraklion | 8–12 May 2018 | E. Seiradake

**Molecular neurobiology**

FR-Strasbourg | 15–19 May 2018 | L. Ryabova

**Target of rapamycin (TOR) signaling in photosynthetic organisms**

IT-Sardinia | 16–19 May 2018 | E. Zeqiraj

**Pseudoenzymes 2018: From molecular mechanisms to cell biology**

SE-Svartsjö | 20–24 May 2018 | N.G. Larsson

**Molecular biology of mitochondrial gene expression**

IT-Grosseto | 27–31 May 2018 | G. Parigi

**Challenges for magnetic resonance in life sciences**

DE-Gatersleben | 3–6 June 2018 | C. White

**Plant genome stability and change 2018**

FR-Ilkirsch | 3–7 June 2018 | E. Soutoglou

**Chromatin dynamics and nuclear organization in genome maintenance**

ES-Sant Feliu de Guixols | 9–14 June 2018 | F. Stutz

**Gene transcription in yeast: From global analyses to single cells**

CH-Ascona | 10–14 June 2018 | C. Dehio

**Bacterial persistence and antimicrobial therapy**

ES-Barcelona | 13–17 June 2018 | S. Van Den Heuvel

**C. elegans development, cell biology and gene expression**

## Editorial

**Coordinating editor**  
Annika Grandison

**Text** Annika Grandison, Tilmann Kiessling, Bernd Pulverer, Katrin Weigmann, Kathy Weston

**Print & web layout**  
Igor Jukic

ES-Costa d'En Blanes (Mallorca) | 17–20 June 2018 | O. Marín

**Cortical interneurons in health and disease**

GR-Heraklion | 17–20 June 2018 | P. Poirazi

**Dendrites 2018: Dendritic anatomy, molecules and function**

PT-Lisbon | 20–23 June 2018 | J. Becker

**New shores in land plant evolution**

UK-Cambridge | 24–28 June 2018 | Y. Modis

**Membrane fusion in health and disease**

GR-Kolymbari | 24–30 June 2018 | S. Bray

**Molecular and developmental biology of drosophila**

ES-Girona | 28 June–1 July 2018 | P. Bruhns

**Antibodies and complement: Effector functions, therapies and technologies**

SE-Stockholm archipelago | 1–4 July 2018 | G. Castelo-Branco

**RNA: Structure meets function**

PL-Wrocław | 9–13 July 2018 | K. Dabrowska

**Viruses of microbes 2018**

DE-Heidelberg | 24–27 July 2018 | T. Hiiragi

**Imaging mouse development**

DE-Berlin | 26–28 July 2018 | P. Selenko

**In-situ methods in cell biology and cellular biophysics**

CH-Arolla | 20–24 August 2018 | S.G. Martin

**Cell and developmental systems**

IT-Siena | 25–29 August 2018 | C.T. Baldari

**Lymphocyte antigen receptor signalling**

DE-Heidelberg | 29 August–1 September 2018 | M. Köhn

**Chemical biology 2018**

AT-Vienna | 3–5 September 2018 | C. Schleper

**Molecular biology of archaea: From mechanisms to ecology**

UK-Harrogate | 3–7 September 2018 | R. Hawkins

**Physics of cells: From biochemical to mechanical (PhysCell 2018)**

IN-Bangalore | 4–8 September 2018 | J.J. Rink

**Size and shape**

IT-Pavia | 9–12 September 2018 | A. Mattevi

**Enzymes, biocatalysis and chemical biology: The new frontiers**

GR-Kolymbari | 11–15 September 2018 | S. Mandrup

**Nuclear receptors and biological networks**

FR-Cargèse | 11–22 September 2018 | M. Labouesse

**Physics of integrated biological systems**

FR-Montpellier | 12–15 September 2018 | M. Simonelig

**piRNAs and PIWI proteins**

HR-Cavtat | 14–18 September 2018 | M. Sibilá

**Cellular signalling and cancer therapy**

## India | EMBO Symposia

IN-New Delhi | 28–30 March 2018 | G. Medigeshi

**RNA viruses: Immunology, pathogenesis and translational opportunities**

IN-Manesar | 15–18 October 2018 | S. Banerjee

**From synapses to memory: RNA based regulatory mechanisms**

## EMBO | EMBL Symposia

DE-Heidelberg | 7–10 May 2018 | T. Halazonetis

**DNA replication: From basic biology to disease**

DE-Heidelberg | 14–17 May 2018 | E. Lemke

Cellular mechanisms driven by liquid phase separation

DE-Heidelberg | 27–30 May 2018 | C. Janke

**Microtubules: From atoms to complex systems**

DE-Heidelberg | 3–5 June 2018 | A. Aulehla

**Biological oscillators: Design, mechanism, function**

DE-Heidelberg | 24–27 June 2018 | F. Randow

**Innate immunity in host-pathogen interactions**

DE-Heidelberg | 5–8 September 2018 | C. Haering

**Principles of chromosome structure and function**

DE-Heidelberg | 10–13 September 2018 | J. Knoblich

**Organoids: Modelling organ development and disease in 3D culture**

DE-Heidelberg | 16–19 September 2018 | P. Bork

**The human microbiome**

DE-Heidelberg | 3–6 October 2018 | A. Ephrussi

**The complex life of RNA**

## EMBO Laboratory Leadership Courses

DE-Leimen, Various dates

## UPCOMING DEADLINES

### Keynote Lectures

1 June and 1 October

### Global Exchange Lecture Series

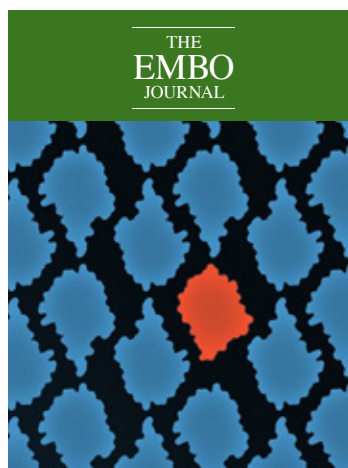
1 June and 1 October

### Courses & Workshops

1 August

For further information see:  
[www.embo.org/funding-awards/courses-workshops](http://www.embo.org/funding-awards/courses-workshops)

*For a complete and up-to-date list of EMBO events please go to [events.embo.org](http://events.embo.org)*



## Revealing the invisible

The protein kinase PINK1 (PTEN induced putative kinase 1) is an important player in mitochondrial quality control. When PINK1 detects mitochondrial damage, it phosphorylates ubiquitin, which then marks mitochondrial membrane proteins for degradation. The exact mechanism of ubiquitin phosphorylation by PINK1, however, has been a mystery, because the ubiquitin phosphorylation site, Ser65, is positioned in a pocket that is well protected by the three-dimensional folding of the protein.

A new study by Gladkova *et al.*, published in *The EMBO Journal*, now sheds light on this matter. Using chemical exchange saturation transfer nuclear

magnetic resonance experiments, the researchers identified a pre-catalytic conformational state of ubiquitin that has its Ser65 loop extended and enables more efficient PINK1 binding and phosphorylation. The researchers in the lab of EMBO Member David Komander also identified point mutations that resulted in ubiquitin more readily adopting the conformation that binds PINK1 more effectively. The results may be of pathophysiological relevance, as defects in mitochondrial degradation are linked to Parkinson's disease.

**An invisible ubiquitin conformation is required for efficient phosphorylation by PINK1**

Christina Gladkova *et al.*

Read the paper: [emboj.embopress.org/content/36/24/3555](http://emboj.embopress.org/content/36/24/3555)

EMBO  
reports

EMBO  
Molecular Medicine

molecular  
systems  
biology

Life Science Alliance

## A hedgehog's guide to puberty

Kallmann syndrome is a genetic condition that manifests in delayed or complete lack of puberty. The condition can be caused by mutations in the WDR11 (WD repeat domain 11) gene. A study by Kim *et al.*, published in *EMBO Reports*, now sheds light on the function of WDR11. It links Kallmann syndrome with ciliopathies – a spectrum of diseases caused by defects in the short, hairlike processes present on almost all eukaryotic cells.

Cilia are required for fluid transport and motility. In addition, they are a hub for the Hedgehog signalling pathway, which regulates cell fate and proliferation. The researchers propose that WDR11 is required for the correct formation of the cilia and is involved in Hedgehog signal transduction. One of the Hedgehog/WDR11 downstream targets is gonadotrophin-releasing hormone, an essential hormone for sexual development. The researchers further link WDR11 to obesity and holoprosencephaly. Their results suggest a new paradigm for the diagnosis of these genetically overlapping disorders.

**WDR11-mediated Hedgehog signalling defects underlie a new ciliopathy related to Kallmann syndrome**

Yeon-Joo Kim *et al.*

Read the paper: [emboj.embopress.org/content/19/2/269](http://emboj.embopress.org/content/19/2/269)

## Orchestrating lung development

Premature babies with underdeveloped lungs often require mechanical ventilation. Yet this treatment can contribute to neonatal chronic lung disease (nCLD). A study by Oak *et al.*, published in *EMBO Molecular Medicine*, has now uncovered a signalling pathway that underlies the susceptibility to developing nCLD and orchestrates the multiple aspects of lung development.

nCLD is characterized by the impaired development of the alveoli and the small blood vessels that support them. The researchers found that point mutations in the platelet-derived growth factor receptor alpha (PDGFR- $\alpha$ ) gene increase the risk of developing neonatal chronic lung disease. This confirms previous research showing that PDGFR- $\alpha$  plays a role in alveolar development. Using a unique mouse model of nCLD, the researchers now show that PDGFR- $\alpha$  also impacts on vascular development by regulating transcription growth factor-beta (TGF-beta) and vascular endothelial growth factor (VEGF). Moreover, treatment with PDGF can restore VEGF signalling in the newborn mouse lung. This is a first step towards the development of new treatment concepts.

**Attenuated PDGF signaling drives alveolar and microvascular defects in neonatal chronic lung disease**

Prajakta Oak *et al.*

Read the paper: [embomolmed.embopress.org/content/9/11/1504](http://embomolmed.embopress.org/content/9/11/1504)

## Making sense of antisense

Antisense transcription is widespread in eukaryotic genomes but its functional implications and influence on sense transcription have remained largely unexplored. A study by Brown *et al.*, published in *Molecular Systems Biology*, sheds light on the function of antisense transcription and shows that it affects chromatin architecture and sense transcript dynamics.

The researchers around EMBO Member Jane Mellor show that yeast and human genes share a unique antisense transcription-associated chromatin signature. Using quantitative RNA-FISH experiments together with a stochastic transcription model, the researchers show that this signature, in turn, alters the transcription dynamics of the sense transcript: Antisense transcription has little impact on the final sense transcript levels, but it does affect the time it takes to get there. This regulatory feature may be advantageous in certain environmental conditions.

**Antisense transcription-dependent chromatin signature modulates sense transcript dynamics**

Thomas Brown *et al.*

Read the paper: [msb.embopress.org/content/14/2/e8007](http://msb.embopress.org/content/14/2/e8007)

## Membranes stack up

Several membrane proteins contribute to the intricate morphology of the endoplasmic reticulum (ER). The lunapark (Lnp) protein localizes to three-way junctions of the tubular ER. A study by Wang *et al.*, published in *Life Science Alliance*, addressed the precise role of Lnp in shaping membrane networks.

The scientists in the lab of EMBO Member Tom Rapoport purified Lnp and reconstituted the protein with phospholipids. Using other membrane proteins, this procedure results in the formation of vesicles. Lnp, however, induced the formation of stacked membrane discs, presumably due to particularly strong interactions between Lnp proteins on neighboring discs.

The researchers further determined that neighboring Lnp proteins interact via coiled-coil domains, and that this interaction is abrogated by a phosphorylation event occurring during mitosis. Abolished trans-interactions of Lnp proteins during mitosis may allow membranes to undergo fusion.

**The ER morphology-regulating lunapark protein induces the formation of stacked bilayer discs**

Songyu Wang *et al.*

Read the paper: [life-science-alliance.org/content/1/1/e201700014](http://life-science-alliance.org/content/1/1/e201700014)



# EMBO

11–14 SEPTEMBER 2018

Congress Center Basel, Switzerland

# at BASEL LIFE

## Molecules in biology and medicine

### Opening event

Science and art  
Jacques Herzog

### Keynote speakers

James Bradner  
Jeffrey Engelman

### Louis-Jeantet prize winners

Christer Betsholtz  
Antonio Lanzavecchia

### Organisers

Karen Avraham  
René Bernards  
Michael Hall

### Speakers

Karen Avraham  
Alberto Bardelli  
Yinon Ben-Neriah  
Paul Birch  
Melanie Blokesch  
Jens Brüning  
Judith Campisi  
Lucía Chávez Gutiérrez  
Don Cleveland  
Deniz Dalkara  
Nathalie Delzenne  
Antonio Di Pietro  
Caroline Dive  
Helena Edlund  
Cayetano González  
Christian Haass  
David Holden  
Clare Isacke  
David Julius

Regine Kahmann  
François Leulier  
Ruth Ley  
Ruslan Medzhitov  
Susan Michaelis  
Stephen O'Rahilly  
Caroline Robert  
Shimon Sakaguchi  
Philippe Sansonetti  
Eran Segal  
Manuel Serrano  
Stephen Simpson  
Charles Swanton  
Matthew Vander Heiden  
Antonio Vidal-Puig  
Jörg Vogel  
Tony Wyss-Coray  
Lars Zender

### Early registration and abstract submission

12 June

### Late abstract submission

24 July

### Late registration

15 August

[basellife.org/embo](http://basellife.org/embo)

#EMBOatBaselLife



EUROPEAN  
ASSOCIATION  
FOR LIFE SCIENCES