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Editorial
For those of us who know EMBO in the present day - a respected organization with more than 1800 members, stable funding and strong connections throughout Europe and the world - it is easy to forget that in the early days EMBO’s financial future was far from secure. After a grant from the Volkswagen Stiftung funded the EMBO Fellowship for the first five years, stable and, importantly, indepen dent funding was only achieved when EMBO’s intergovernmental funding body, the European Molecular Biology Conference (EMBC) was established in 1969.

Twelve European countries initially signed the agreement that brought the EMBC to life on 13 February 1969. Marking the 50th anniversary this year, we invited the EMBC delegates from all 30 EMBC Member States to a celebratory symposium in June (p 10-13).

You only need to take a look at the page overview to note that the EMBC anniversary was not the only reason for celebrations during the last months. It is a pleasure to announce Madan Babu and Paola Picotti as the recipients of this year’s EMBO Gold Medal.

For the first time this year we will present the Gold Medals at the EMBO Members’ Meeting in October. We announced the newly elected members in June (p 6-7), and preparations for the meeting are well underway. I look forward to welcome many of our 56 new EMBO Members and their proposers in Heidelberg for this occasion.

Maria Leptin
Director, EMBO

Two systems biologists receive EMBO Gold Medal

Award recognizes the work of M. Madan Babu and Paola Picotti

EMBO awards the Gold Medal annually to honour the exceptional achievements of selected life scientists under the age of 40 in Europe. The medal stands for recognition of research excellence and the importance of young independent group leaders in creating a strong research environment. M. Madan Babu and Paola Picotti will each receive a gold medal and an award of 10,000 euros.

“it is a great recognition”
– Madan Babu

M. Madan Babu receives the award for his fundamental contributions to the field of computational molecular biology, specifically for his discoveries in the areas of G protein-coupled receptor (GPCR) signalling and intrinsically disordered proteins.

Madan Babu, who is based at the MRC Laboratory of Molecular Biology, Cambridge, UK, began using computational methods to study biological questions during his PhD. His recent work on GPCRs explains why people respond differently to certain drugs, which has direct implications for personalized and precision medicine. Babu also discovered the roles of disordered proteins in biology and disease. The high-throughput screen he and his team developed underpins the importance of disordered regions and their functions.

EMBO Member Veronica van Heyningen, EMBO Member Anne Bertolotti, MRC Laboratory of Molecular Biology, Cambridge, UK, says about Picotti: “Paola is recognized as a leader at multiple levels and across disciplines. The limited proteolysis method she developed already pushed the boundaries of our knowledge significantly. We can now examine conformational changes, which brings our abilities to understand protein functions in their complex cellular environment to an entirely new level.”

Picotti says that “it is wonderful to get such recognition, and I accept the award on behalf of all my group members who contributed to this work.” She adds: “I feel very honoured to receive it alongside Madan Babu, whose work on intrinsically disordered proteins inspired parts of our work.”

“i feel very honoured”
– Paola Picotti

Picotti’s focus on mass spectrometry began during her PhD, and she contributed to developing targeted proteomics during her postdoctoral fellowship. Her group at ETH Zurich in Switzerland recently used structural proteomics strategies to characterize the determinants of proteome thermostability and to map protein–metabolite interactions.

EMBO Member Anne Bertolotti, MRC Laboratory of Molecular Biology, Cambridge, UK, says about Picotti: “Paola is recognized as a leader at multiple levels and across disciplines. The

About the EMBO Gold Medal
The EMBO Gold Medal is awarded annually to life science researchers under the age of 40, who are currently working in one of the EMBO Member States. EMBO Members and EMBO Young Investigators are invited to nominate candidates for the medal. To be considered, a nomination must be supported by one proposer and two sponsors.

The deadline for nominations for the 2020 award is 1 February 2020.

More information: embo.org/funding-awards/gold-medal
What motivated you to pursue a computational approach to biological research?

Around the time I started my degree we experienced a revolution in genomics, in structural biology, and in sequencing technologies—every few years there was another wave of technological advancement and understanding. An enormous amount of data was being produced, describing various biological entities and processes from diverse organisms. It started to become clear that by understanding and integrating these diverse types of data, we can ask and answer fundamental questions. I found this cross-over between computational science and biology to be exciting and unique.

You have made some important discoveries about G-protein coupled receptors and disordered proteins. What is the key findings of your studies? About 40% of the proteins in eukaryotes are predicted to be disordered. Why are they so prevalent? How do they function? How are they integrated into cellular networks and contribute to different phenotypes? We have shown that disordered proteins play a role in protein-protein interaction networks in both space and time, for example by segregating specific proteins to one part of the cell, or ensuring that two proteins only interact at a certain time during development. Disordered proteins can therefore influence the function and health of the cell and the whole organism. We also found that cells tightly regulate the abundance of disordered proteins. This helps to explain why mutations that affect the abundance of these proteins are implicated in diseases such as cancer and neurodegeneration.

Your research encompasses many different disciplines and biological questions. How important is collaboration in your work?

Collaboration is critical on many levels. Talking to colleagues with different backgrounds really sharpens my own thinking. And, for example, we also collaborate a lot within the group. We have observed polymorphisms in the GPCR target protein in mouse and patient samples, which may explain why antidepressants to an opioid overdose may not always work. This is a good example of how an integrative, data-science based approach can provide new insights and potentially have an impact on society and healthcare.

Your work has changed our understanding about disordered proteins. What insights did your work reveal?

Your work has revealed that disordered proteins play an important role in cells and organisms. They can provide new insights and potentially have an impact on society and healthcare.

What advice do you pass on to your students? Spend time getting to know how the data was generated, and its limitations before jumping in. Frame the question clearly. This is half the problem solved, and helps you from getting distracted.

I believe it is important to embrace failure. You might think you’ve lost a lot of time, but you’ve acquired a lot of experience and expertise understanding the data and the scientific question. That is a privileged position to be in.

Finally, have confidence in what you know but be open-minded. To push the boundaries of conventional wisdom, we have to question the basic facts and be prepared to embrace new ideas.

What does receiving the EMBO Gold Medal mean to you?

It is a great recognition of the work we are doing, which would not be possible without the past and present members of my research group and the generous, long-term funding from the Medical Research Council’s Laboratory of Molecular Biology. It is also recognition of the contribution of knowledge to the field of molecular biology that comes from computational work. That’s a great feeling.

EMBO Gold Medal recipient Paola Picotti discusses her work on protein–molecule interactions and protein aggregation, her fascination with complex problems and the need to feel excited

Revealing the changing shapes of proteins

What motivated you to go into scientific research?

When I was young, I felt a sense of unease thinking, ‘wow, I could spend the rest of my life doing this’. I was fascinated. I thought it was beautiful, complex and mysterious. I remember thinking, ‘wow, I could spend the rest of my life doing this, and other proteins work’. And I’m very lucky that this seems to have happened!

You developed an approach to analyse structural changes in proteins. What makes the limited proteolysis coupled to mass spectrometry, or LiP-MS, method so powerful?

Protein structural changes are largely studied in vitro, for which you must first identify a specific protein for analysis. The LiP-MS method, however, is a biochemical and mass-spectrometric approach that can identify proteins that undergo a structural change directly from a complex biological sample. It can be used to systematically identify proteins that change conformation, unfold, or aggregate in cells treated in different ways. Since binding of a small molecule also affects the structure of a protein, the approach can be used to identify interactions between proteins and small molecules, including identification of drug targets, and binding sites.

What motivated you to receive the EMBO Gold Medal?

These diseases are characterised by proteins that undergo a structural change, making them prone to form aggregates. We are currently studying the structures of aggregates and aggregation intermediates directly in cellular extracts and tissues. And we are asking whether altered protein structures in biological fluids such as cerebrospinal fluid can be used as a new class of biomarkers for Parkinson’s disease.

What advice do you pass on to your students?

Firstly, I feel it is important that students use their Ph.D. to learn how to think critically and independently. Secondly, they should pick a topic that excites them, and then dig in. If there is no excitement, then there won’t be enough motivation to keep going. We all know this! And finally, I feel it is important that students develop a positive attitude towards science and scientific results. Sometimes a failed experiment contains useful information, and sometimes a failed hypothesis can mean an even more exciting discovery.

How do you support others in balancing family and work life?

I believe it is possible to be a dedicated parent and an engaged scientist and I am passionate about supporting others in reconciling family and work life. That’s why I started a project to finance emergency childcare in my group. Especially in the winter, young children can often be sick, and this can really affect productivity. I am a mother of two and I know that this can be challenging. Maybe the support we provide does not completely solve the issue, but I hope it contributes to creating a supportive work environment.

What does receiving the EMBO Gold Medal mean to you?

It is wonderful to get such recognition, and I accept the award on behalf of all my group members, past and present, who contributed to this work. I also feel very honoured to receive it alongside Madan Babu, whose work on intrinsically disordered proteins inspired parts of our work.
Welcome to the new EMBO Members
56 researchers from 22 countries elected to the membership

In June, EMBO announced that 56 life scientists were elected to its membership. The 48 new EMBO Members reside in 17 Member States of the European Molecular Biology Conference (EMBC), EMBO’s intergovernmental funding body. The eight new EMBO Affiliate Members are researchers currently working in Argentina, Australia, Japan, Singapore and the USA, 24 of the new members are women.

Ever since the very first EMBO Council, chaired by Max Perutz, was tasked with selecting and inviting the first EMBO Members in 1963, new members are nominated and elected by the existing membership. This year, participation was especially high, with 65% of the eligible EMBO Members taking part in the election process.

EMBO will formally welcome its new Members and Affiliate Members at the annual Members’ Meeting in Heidelberg between 29 and 31 October 2019.
Mentoring across the EMBO community

As part of the career development opportunities offered by the EMBO Young Investigator network, young group leaders can choose an EMBO Member as a mentor. Three mentoring pairs talked to Kathy Weston about how their relationship influenced their approach to science and running an independent lab.

Nuno Barbosa Morais thinks that an early visit by his EMBO mentor Chris Ponting was a turning point in his lab’s life: “Chris had a huge impact on how the lab evolved,” says Barbosa Morais. “He did a great job helping me to see what it was that we were doing well, and what we could improve on, and that really boosted morale in the lab. I felt a huge gain in momentum after his visit.”

Exploring common grounds

For Barbosa Morais, who was awarded an EMBO Installation Grant in 2015 to help him set up his new lab at the Instituto de Medicina Molecular in Lisbon, Portugal, picking Ponting as a mentor was, as he says, “a no-brainer. We’re both computational biologists, and I related to Chris starting up like me as a physicist. I knew right away that Chris was someone I could talk to.”

Ponting is also very happy with the relationship: “I contributed to Nuno’s field of disease transcriptionists in the early days but then moved on. And reconnecting to it has validated for me that it was fine that I didn’t linger there,” he says. “Nuno is doing great work, including things that I probably wouldn’t even do, so to see his area flourish is incredibly interesting scientifically.”

Both agree that one of the perks of being a computational biologist is the temptation to spread oneself too thinly. “Chris has faced similar dilemmas, in terms of how much we should collaborate and how much we should focus on our own projects,” says Barbosa Morais. “The fact that he’s successful and has dealt with the same problems, makes him a really good role model for me.”

Pointing out the pitfalls of their field has also helped Ponting: “My rationalism as a mentor has always been to try to ensure other people don’t go down the pits I’ve encountered, but advising Nuno has made me think whether the advice I’m giving is what I actually am putting into practice,” he says. “I’ve realised I may have let things go a little bit!”

More than science

Ponting’s mentoring goes beyond discussions about science strategy and navigating departmental politics into how to manage another vital aspect of being a successful scientist: “Running a group is a lonely, and sometimes alarming, experience for new lab heads, but it is important to get it right, as it allows you to do the science in the best way possible,” he says. “So many people think that the most important thing is the science, and that all the issues around it are trivial by comparison, but it’s not true.”

This stance is also close to Barbosa Morais’s heart. “I really feel a responsibility for launching the scientific career of the junior people who work with me, and the fact that this has been a big part of my discussions with Chris has been a very pleasant surprise.”

Asked what he’s found most surprising about Ponting, Barbosa Morais says that his willingness to admit to past failure has been revelatory. “The number of pitfalls in Chris’s career is probably reduced compared to other successful scientists, but he’s willing to discuss them and to actually use them in a positive way. It was really after meeting Chris that I realised that when things don’t go as well as planned, it’s still okay: I know now that a crisis can actually bring an opportunity, and be a source of inspiration.”

nnika Guse studies coral–algal symbioses. Establishing a lab that works on a non-conventional model organism brings a number of challenges, and it was this that Guse had in mind when she set out to pick a mentor.

Connecting over unusual approaches

“I searched the EMBO Members’ directory for someone with a cell biological background like me, but who was interested in exploring new model systems and evolution-related questions,” she explains, “and I found Buzz Baum.” Baum had recently started working on the evolution of eukaryotes, using archaea, single cell organisms, that were first isolated from hot springs in Yellowstone National Park, as a model to study how complex cells arise. “When I asked about Buzz I heard that he was an exceptional scientist and was great to talk to, so he seemed like a perfect choice,” says Guse. Despite saying that his most useful piece of advice to potential mentees is “learn to say no,” Baum agreed to become Guse’s mentor: “because when we started talking it was clear we were both doing things that are a bit whacky, and I quite like whacky!”

“When you step outside an established field and go your own path, as we both have, it takes time to develop tools and so forth, and whilst people give you some time, you also have to publish to show you have used the trust and money they’ve invested in you to deliver something,” Baum says. “Annikka and I had both been thinking about this a lot before we met.”

Guse agrees, and also highlights the potential isolation of starting in a new discipline: “Finding a new community is hard when you go it alone, and if you try to talk to people who don’t work in emerging models, they’re bored by the difficulties you’re facing every day, and lose interest rapidly.”

Exploring joint projects

The two hit it off so well that earlier this year, Guse helped Baum organize an EMBO Young Investigator student workshop in Palestine. “It worked out pretty well,” she says. “I knew it would be a good learning experience and I would meet interesting people, but it also felt like a once in a lifetime opportunity.”

in lipid biochemistry, which is a very different area to what my group works on; I’ve learnt a lot about the field from the discussions we’ve had.”

Nakamura thinks the scheme has put his interactions with Coupland on a new footing: “The fact that it’s an official part of the EMBO Programme makes me take it very seriously,” he says. “During my yearly visit, I always try to bring a new and interesting story to show George, and that really drives me to work very hard for the rest of the year!”

Learning for both parties

The career structures in Taiwan and Germany are quite different, so that the focus of the mentoring is predominantly scientific: “George spends a lot of time talking to me about my work, and his comments and questions are really refreshing,” says Nakamura. “It’s a great opportunity to look at the science from a different aspect.” However, Coupland thinks that the differences between the two countries have also been illuminating: “In following Yuki’s career, I’ve learnt interesting things about how other systems treat their young researchers and nurture their careers,” he says.

Both Nakamura and Coupland intend to maintain their relationship for the foreseeable future. “I’m going to continue my yearly visit because it’s simply exciting,” says Nakamura, “and I’m always looking for a chance to invite George to Taiwan. I hope the connection will get tighter and tighter.”

Coupland agrees: “Yuki combines his dedication and deep knowledge of lipid biochemistry with many talents outside science,” he says. “In an earlier life he was a concert pianist, and in his apartment in Taipei, he’s played music for me while we met. Having Baum as an external mentor has given me a new confidence: “The kind of advice I get from Buzz is really helpful,” she explains. “Sometimes I’m not secure enough to push something through, or I shy away because I don’t want to annoy anybody. Buzz gives me support on new ideas and hard decisions, including dealing with lab members, when you want to be fair but you still want to convey your vision.”

Baum says that he and Guse have a very similar personal philosophy, which is why the relationship works so well. “Mentoring schemes sometimes don’t work because so much depends on how you want to do science. There’s no one way to succeed, but whatever path you choose, there will be lots of barriers to overcome and rhythms to navigate. So, everyone needs help to be the best scientist they can be, and you can give that help most effectively if you agree on what that best way is.”

“Science is a community endeavour,” concludes Baum, “and I really enjoy the coincidence that I’m mentoring someone who is studying symbiosis, where coming together and sharing things is a way of life!”

More information: https://www.embo.org/funding-awards/ young-investigators

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EMBO NEWS
Five decades of funding excellence in the life sciences
Anniversary symposium marks 50 years of the European Molecular Biology Conference

Delegates, friends, partners, colleagues, and collaborators came together on 24 June 2019 for a symposium celebrating the 50th anniversary of the European Molecular Biology Conference (EMBC). The EMBC is an international and independent funding body that was set up in 1969 to provide stable finances for EMBO to carry out its activities. The event allowed participants to reflect on EMBC’s specific contributions to bringing life science research onto international policy agendas, as well as exploring challenges and opportunities ahead.

EMBO President Gertit van Meer explained the role of the EMBC in funding EMBO’s diverse initiatives, which include fellowships, conference grants, and a science policy programme. “EMBC by itself is not just for the money, but for the flexibility in their work – you see it in the enthusiasm in which EMBO staff work for our general programme, it all fits together.”

EMBO Director Maria Leptin paid tribute to the central role the EMBC played in EMBO’s success. “What makes the EMBC stand out is the openness, flexibility and constant focus on common cross-border goals,” she said. Leptin thanked the EMBC on behalf of EMBO “not just for the money, but for the flexibility in their work – you see it in the enthusiasm in which EMBO staff work for our general programme, it all fits together.”

Scientific talks brought three researchers to the stage to address aspects of life sciences themed on human beings past, present and future. Johannes Krause from the Max Planck Institute for the Science of Human History in Jena, Germany, explored the genetic history of Europe. He explained how the field of archaeogenetics is reconstructing genetic data not just from people, but from fossilized microbes found on ancient bones, teeth and organs. The audience heard how the work is allowing scientists to rethink human origins and past epidemics, shedding light on prehistoric migration and adaptation events.

Matthew Larkum of the Humboldt University of Berlin, Germany, asked, “What’s special about the brain?” He talked about the progress and limitations of our understanding of deep neural networks, mysteries such as how different parts of our brain work together to enable us to see objects, and exciting new developments in technologies such as optogenetics. Larkum’s work explores how converging signals in our cerebral cortex contribute to conscious perception and memory consolidation.

Delegates of the 30 EMBC Member States attended the symposium – including representatives from Sweden, who together with Germany and Switzerland are founding members. “It is something we can be very proud of,” said EMBC delegate Björn Andersson, Karolinska Institutet, Stockholm. “EMBC and EMBO have been extremely good at bringing people together across Europe, fostering exchange and strengthening molecular biology – this gave Europe a critical mass of researchers and expertise in this area, and it is a global force as a result.” Another Swedish delegate, Maria Thureson from the Swedish Research Council, added: “EMBC and EMBO constantly identify new areas and challenges, how we can learn from each other and work together towards common goals – just one example is the work actively being done by EMBO to address research integrity and misconduct issues.”

The symposium concluded with a lively panel debate focused on understanding past and present policy in areas such as research approach, funding, and interdisciplinary science – and how it might be improved in the future. The panel featured 24 plenary speakers, significant contributions from the audience, and was moderated by Michele Garfinkel, Head of the EMBO Science Policy Programme.

More than 100 people attended the symposium, including delegates, cooperation partners and representatives of international organisations from around the world. The event took place at the Max Planck Institute for Nuclear Physics in Heidelberg, Germany, where plans for the current EMBC/EMBO campus were drawn up in portable cabins in the 1960s.

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Switzerland hosted the first EMBO headquarters and also played a crucial role in the establishment of EMBC. “EMBC’s impact over the past five decades is not just about money and prestige, but also achievements in science made possible by internationality, openness, and a focus on excellence,” said EMBC delegate Doris Wohlfender-Bühler of the Swiss State Secretariat for Education, Research and Innovation (centre, together with the other two Swiss delegates Laurent Salzarulo, left and Anna Jazwinska Müller, right). “50 years is a huge milestone, and it is important to remind people of the terrific contributions molecular biology has made to biomedicine and many other fields. This will undoubtedly continue in the future; the excellent talks at the symposium have shown that there is still much to do and so much more EMBC and the researchers in the field of molecular biology can achieve.”

Montenegro is the newest EMBC Member State, having joined the organization a year ago. “We are encouraging our research community to take advantage of opportunities that being a member of EMBC and EMBO offers, in particular fellowships and other academic exchanges,” said Danilo Mrdak, EMBC delegate based at the University of Montenegro. “The collaboration is two-way: we have a lot of extraordinary young people, and if we present them with the right opportunities and resources they can produce a lot of great things.” Delegate Djurdjina Bulatovic of the Ministry of Science of Montenegro added: “Internationalization and networking are crucial for us – it is very important for us to be part of institutions like EMBL, EMBO and EMBC. Scientists across Europe are dealing with many of the same issues and we are stronger if we come together to tackle them.”

EMBC’s broad geography reflects the value it brings to its members. “I see the great impact of being a member of EMBC in my own country – for instance the Strategic Development Installation Grant, which is a collaborative programme that EMBO developed together with funding agencies of a number of EMBC Member States that would like to foster molecular life sciences in their countries,” said Jake Sahin, Senior Programme Manager and EMBC/EMBO National Contact Point from International Cooperation Department of the Scientific and Technological Council of Turkey (TÜBİTAK). “Turkey is one beneficiary of this initiative, and TÜBİTAK makes a financial contribution to the programme. Installation grantees have access to facilities and interact with scientists that do really good work in the world. EMBC and EMBO take away borders and make a universal connection between people and countries. You realise that in order to do great science, you need to make the right choices in science policy – that is a crucial role for EMBC and EMBO.”

The event highlighted the diversity that makes the EMBC and EMBO what they are – powerful organizations in ensuring European life science achieves its great potential now and in the future. Throughout the day, a focus on common, cross-border goals showcased the ultimate roles of EMBC and EMBO: two organizations that collaborate efficiently and effectively across borders, sharing knowledge without barriers to advance excellence in the life sciences.

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**Research integrity in practice**

**World Conference on Research Integrity focused on practical aspects**

Between 2 and 5 June, The University of Hong Kong hosted the 6th World Conference on Research Integrity. EMBO has been attending and contributing to the discussions at this conference since 2007. The theme of this year’s meeting was “New challenges for research integrity” with a focus on systemic factors that influence researchers’ practices—such as research assessment, incentives and rewards, competition, short-term funding—and on ways to change these to ensure the quality of research.

**Towards rewarding quality over quantity**

“The conference organizers put a welcome focus on the practical aspects of research integrity,” says Michele Garfinkel, Head of the EMBO Science Policy Programme. She continues: “This is in line with the work EMBO is doing on bridging the gap between theoretical policy discussion and practical implementation.” For example, EMBO was a co-founder of the San Francisco Declaration on Research Assessment (DORA), has analyzed alternatives to peer review, and is delivering research integrity workshops to the European life science community.

Many speakers cited DORA as an example of various efforts to improve research assessment. However, stressed plenary speaker Frank Miedema of the University of Utrecht Medical Center in the Netherlands, it is important in 2019 to simply signing a declaration does not directly translate into actually changing practices. The conference on the whole called for a change in the system that rewards quality over quantity.

The meeting follow-up will include a document outlining a set of principles and examples of good practice to help institutions to improve their existing research assessment systems. It will complement other statements and manifestos, such as DORA and the Leiden Manifesto, stressing the importance of research integrity in any change to the incentives and rewards for career development.

Among the principles to improve the evaluation of research included in the draft document are to prioritize responsible research practices in all aspects of research, such as data sharing; value reporting of all research (regardless of results); value a broad range of research activities like innovation, collaboration, and training; and consider other contributions to research such as peer review and mentoring.

**Researchers’ voices must be heard**

One of the topics discussed was the important role funders have in establishing best practice in research assessment. However, the role of scientists themselves should not be underestimated. Plenary speaker David Moher, University of Ottawa, Canada, said that it is important for scientific leaders to also become ambassadors of responsible conduct in science by, for example, talking about and thereby raising awareness of topics such as research assessment and the ways in which it could be improved at conferences.

EMBO hosted a panel discussion on the role of researchers and institutions in resolving diverse research ethical issues, chaired by Michele Garfinkel. And EMBO Director Maria Lopin used her plenary lecture “What innovation can we tell us about responsible conduct of research?” to stress that it is crucial to involve scientists in discussions relating to fostering research integrity.

EMBO encourages researchers to join the next World Conference on Research Integrity in 2021 (https://wcri.org). For information on EMBO work on research integrity, contact policy@embo.org.

**Interdisciplinary science and networking**

**EMBO Fellows get together in Heidelberg for annual meeting**

The 2019 EMBO Long-Term Fellows came together at the annual EMBO Fellows’ Meeting in Heidelberg from 13 and 16 June 2019. Each year EMBO invites the postdoctoral researchers reaching the end of their EMBO Fellowship to this four day meeting to talk about their research and meet each other.

Each of the participants gave a presentation of their research. As Fellows gave 15 minute overview of their work, while 11 presented their work as a poster and in a shorter flash talk format. The meeting “was one of the best examples of interdisciplinarity... when I will get the opportunity (again) to present drug targeting in the same session with a sniff response talk to detect consciousness of a ‘Tryptanoma Project full life cycle’ commented Melanita Zauri, Spanish National Cancer Research Centre Madrid, Spain.

**A guide to strategic writing**

**New course for early-career researchers focuses on a proactive approach to writing scientific papers**

Writ ing up research to present a coherent, convincing manuscript can be challenging at any career stage. It is especially daunting for PhD students, who may have little experience of writing scientifically, drawing conclusions from data, or making arguments about their discoveries and ideas.

The EMBO Press editors have developed a course to teach PhD students and postdoctoral researchers how to structure their research so that writing it up is more efficient and rewarding. By planning ahead in their experimental design, students can make life easier— for themselves and their supervisors—when it comes to putting together figures and describing discoveries. The course, “Writing a Scientific Research Paper,” is available through the EMBO Solutions training portfolio.

“We are deconstructing an article into its nuts and bolts, highlighting key replication and synthesis in the review process. Explaining the steps helps to demystify the process and increases the likelihood of successful submission and publication.”

**tion and develop a good structure, it can ultimately increase the quality, appeal and accessibility of your work,” says Polychroniou.

EMBO Solutions provides a range of training options for scientists at different career stages, in addition to the flagship EMBO Laboratory Leadership course, the portfolio now also includes courses on project management, negotiation, and the editor-led courses on research integrity and writing scientific papers. http://lab-management.embo.org/ course-overview/sciencewriting
**EMBO News**

**EMBO members are invited to transfer their latest studies on the life sciences,**

Published: 2019-08-22

**EMBO News**

**EMBO Members Ana-Maria Lennon and Matthias Piel of the Institut Curie in Paris, France, together with artist and author Reinhard Chabrier, initiated a science communication project titled ‘Globule: the magazine of all cells’ to tell the story of dendritic cells.**

The aim of the booklet is to open up the world of science to children above 12 years of age and adults interested in learning about cellular and molecular biology. In a cartoon-based style, the booklet covers the basics of cell biology using the example of a dendritic cell. They show how these cells act, interact and function, including their role in the immune response. The story tells in a visually intuitive way how cells migrate in a crowded environment, namely the human organism, thus illustrating basic biophysical principles of cell behaviour.

The successful use of artistic methods to explain modern biological research in the first ‘Globule’ allowed Reinhard Chabrier and EMBO Member Carson J. Tsang to initiate a research grant to explore the place of drawing in modern science, and for Reinhard Chabrier to prepare a PhD at the interface of art and science.

Further reading:

Chabrier and Janke, The comeback of hand drawing in modern life sciences; DOI: 10.1038/nrm.2017.126

Garcia-Arco et al., Reconstitution of cell migration at a glance; DOI: 10.1242/jcs.215565

**EMBO conserves Suzanne Eaton (1959-2018).** The developmental biologist was a scientist at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany from 1993-2001 and was elected as EMBO Member in 2006. She was one of the founding group leaders at the Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG) in Dresden, and professor at the Biotechnology Center (BITEC) at Technical University Dresden, Germany. Suzanne Eaton was an acclaimed scientist, respected by the wide international community. With her bright mind and passion for research, she addressed questions in signalling, tissue mechanics and, more recently, regulation of metabolism during development and mathematical modelling in a predominantly experimental field. She was also known as a gifted athlete and an avid piano player, balancing her busy life as a scientist with her family and a rich cultural life.

Suzanne Eaton tragically died on 2 July as a consequence of a criminal act while attending a scientific meeting on the island of Cote, Greece. She is survived by her two sons and by her husband, EMBO Member Tony Hyman. Her family, friends and fellow scientists are paying tribute to Suzanne Eaton, for example on websites by the MPI-CBG and EMBL. With the desire of many to honour Suzanne Eaton as a scientist, mentor, and friend a fund was established in her memory. The Suzanne Eaton Fund will support young scientists to explore topics outside their core area in order to further their research. Donations to the fund are possible at [https://www.betterplace.org/eng/projects/71780-suzanne-eaton-fund](https://www.betterplace.org/eng/projects/71780-suzanne-eaton-fund).


**In memory of Suzanne Eaton**

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**EMBO working group established in Turkey**

Further developing the life sciences has been an ongoing effort in Turkey. As one of the most recent activities, an EMBO working group was set up. Its goal is to create a plan to raise awareness of the EMBO Programmes and to increase the number of applications for them by Turkish life scientists. The group consists of 15 Turkish scientists, including EMBO Member Momerh Oktar, Izmir Biomedicine and Genome Center, and one representative from TUBITAK, the Scientific and Technological Research Council of Turkey.

The group is gathering and evaluating information on the needs and requirements to improve life science research in Turkey, and passing this information to EMBO representatives and to the EMBO Strategic Working Party, says Jale Sahin, EMBO and EMBO National Contact Point at TUBITAK, the main public funding body. “In the group, we are also working to recruit EMBO Fellows to Turkish research labs and increase the number of EMBO-funded scientists in Turkey,” she adds.

Turkey has been an EMBO Member since 1993. The TUBITAK International Relations Directory/ Bilateral and Multilateral Relations Department had initiated the EMBO working group. The group met for the first time in March at the TUBITAK Headquarter in Ankara and has been coordinating activities across Istanbul, Ankara, Edirne, Bursa, Izmir, Antalya, Adiyaman and Van since then.

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**Telling the stories of cells**

EMBO Members Ana-Maria Lennon and Matthias Piel of the Institut Curie in Paris, France, together with artist and author Reinhard Chabrier, initiated a science communication project titled ‘Globule: the magazine of all cells’ to tell the story of dendritic cells.

The aim of the booklet is to open up the world of science to children above 12 years of age and adults interested in learning about cellular and molecular biology. In a cartoon-based style, the booklet covers the basics of cell biology using the example of a dendritic cell. They show how these cells act, interact and function, including their role in the immune response. The story tells in a visually intuitive way how cells migrate in a crowded environment, namely the human organism, thus illustrating basic biophysical principles of cell behaviour.

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**Publishing alliance comes of age**

Since its launch in early 2018, the team behind the new Life Science Alliance (LSA) journal has driven forward its commitment to speed, fairness and transparency, publishing more than 170 papers in the first year and a half.

When Bert De Strooper, VIB, Leuven, Belgium, was invited to transfer his latest study on the role of the inflammasome in Alzheimer’s disease to LSA [1], he was initially sceptical – LSA had yet to release its first issue. “I was not super enthusiastic,” he says. “I had seen unfamiliarity, his student Iryna Vortyuk saw opportunity. “It was a nice story, but the original editor felt it was not what they wanted them to focus on, so they offered us the chance to publish in LSA,” says De Strooper whose group investigates basic mechanisms controlling Alzheimer’s and Parkinson’s diseases. “I was not super enthusiastic at first, but Iryna was keen to have her work published and move on to a new position, and convinced me to give it a go.”

“We need to get the word out that LSA is a great venue that people can trust.”

In the past year and a half, Leibfried has been busy building the journal’s profile, addressing technical issues, and working on the ideas, questions and concerns of editors and authors. “Now the challenge is to encourage more researchers to make use of LSA, to make more offers for transfers, and to increase the proportion of authors who take up a transfer,” she says. “Often researchers might be preoccupied by impact factors – we are too new to rank in traditional metrics, but through our editorial process, and dedicated professional and academic editors and an academic editorial board spanning a broad range of areas, we are publishing research of explicit value for the different fields in the life sciences. We need to get the word out that LSA is a great venue that people can trust.”

Crucial to this is the personal approach taken by the journal’s team. “If I had a question, Andrea immediately replied,” says Sara Sigismund, University of Milan, who published a paper focussed on how endocytosis can regulate signals from a key cellular receptor [2]. “The editors guided us through their expectations, highlighting the most relevant reviewer comments, we talked together before deciding on follow up experiments and they really improved the manuscript – in my experience it was very friendly, professional and helpful.”

While Sigismund’s paper was recognised as technically excellent, because it described a function in vivo that had previously been characterised in vitro, the paper was recommended for transfer to LSA. “It is very hard to find a completely novel story,” says Sigismund, whose work is focussed on how cancer cells bypass the cellular safety checks meant to stop them. “Sometimes it is important to revisit mechanisms in processes that are already known, but the hardest thing is to identify good stories that are an advance in the field. Sometimes scientists are forced to render things more novel or only follow trendy directions. Challenging this is another goal for LSA, Leibfried explains. “Our emphasis is on publishing findings that are valuable to the field,” she says. “It does not mean that something needs to provide a big conceptual advance, or be hugely novel – a small step can be very important. Ultimately, we want to establish if the paper is a good fit for our audience – if the novelty factor is fairly low, we interact with the community to understand if the finding is of significant value to the field.”

“The interactions with authors is what I like best,” Leibfried continues. “Authors can often clarify why an issue raised during peer review is not really such a big problem, or highlight the technical challenges associated with addressing it, making the portable peer review process interactive and collaborative. LSA is a new journal, competing with so many other journals, but I am tremendously proud of our content and what we have achieved so far, and excite about where we are heading in the future.”

The peer review process at LSA mirrors the rigorous standards set by its partner journals - and for each potential transfer to LSA, there are often intensive communications between editors of both journals. “We all want to advance science and this is a terrific example of how we can create a common venue that gives new options for direct submissions, or a second chance if it did not quite work out with one of our partner journals,” says Andrea Leibfried, LSA Executive Editor. “We know that getting rejected is associated with disappointment, but we are immediately providing an offer of how their paper might fit in LSA, which we hope they consider.”

“We need to get the word out that LSA is a great venue that people can trust.”

Most important for De Strooper was that the journal offered high quality editorial and peer review. “Right from the start, my interactions with the editors were great,” he explains. “As the peer reviewers on our initial submission were also transferred, we avoided having to go through the process once more – it saved us around a year’s worth of additional work. Now Iryna has this great story, it’s her own work, it’s published, our lab can cite it, and she has moved onto an exciting new role. The transparency of LSA’s peer review process, in particular, is a very good way of creating openness, and having the mark of quality that comes from the journal’s partner organisations is very important – I think LSA has a great future.”

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Living architectures at Paris Nuit Blanche

In a unique partnership with artists Pierre Froment and Nadir Bonassir, EMBO Member Manuel Théry and his lab brought cellular architecture to life on the facade of a central Paris building during the contemporary all-night art festival ‘Nuit Blanche’ in October 2018.

Titled ‘Architectures Vivantes’, or ‘Living Architectures’, the project engaged visitors with science, showing the beauty of self-assembling cellular cytoskeletons.

Théry’s group developed a technology that allows them to constrain cells as well as purified cytoskeletal filaments to regular geometries, such as squares and other shapes. “If one could project the cellular images onto, the researchers created a microscopic version of it, onto which they let different cell types and purified filaments grow, either by making the windows obstacles or by constraining the growth to the windows only. Using fluorescent microscopy, they created movies, which were then projected onto the original building along an instrumental soundtrack.”

To watch the process and the resulting installation, see https://vimeo.com/315555342 and https://vimeo.com/316748994

Taking science to the streets of Lisbon

Scientists at the João Lobo Antunes Institute de Medicina Molecular (iMM) in Lisbon, Portugal work in areas relevant to human health, including oncology and infectious and neurodegenerative diseases. They are interested in understanding the mechanisms that lead to disease and laying the foundation for better diagnosis tools and new treatments.

“Since these themes are relevant to society, it is of utmost importance to make the research developed at iMM more perceptible and increase the involvement of people with science,” explains EMBO Member and iMM President Maria da Correia-Fonseca. With this in mind, the institute developed a public awareness campaign with the motto ‘There is no great question without a great answer’. Focus of the campaign were questions that iMM scientists pursue: Why is there no vaccine against malaria? How does breast cancer appear? What does chocolate do to our brains? The questions were placed on billboards in the streets and metro stations around Lisbon. EMBO Member and iMM Executive Director Maria Mota explains: “Unleashing curiosity about science and the questions we are working on were the starting point for connecting citizens with science. Each poster also had a specific QR code linking the questions and visuals on the posters to short videos with our scientists.”


Interactive teaching on emerging viruses

Two years ago, EMBO Member Nielsenuvent has introduced a new postgraduate course on emerging viruses at the Institut Pasteur in Paris, France. The one-year, intensive course due to run again in October this year, Jouveuven presents what he considers the goals: “We aim to transmit understanding and expertise in the diverse family of RNA viruses with a particular focus on replication, pathogenesis, mechanisms of emergence, and therapeutic approaches.”

To ensure students are taught by experts, Jouveuven and her co-directors enlist scientists from the institute as well as external specialists as trainers. She adds: “In addition to lectures, we offer round tables with the speakers, debates and tutorials to encourage students to ask questions and make connections for future collaborations.”


Elisa Izaurralde Memorial Symposium

On 30 April 2019, the Max Planck Institute (MPI) for Developmental Biology in Tübingen, Germany, hosted a Memorial Symposium for RNA biologist and EMBO Member Elisa Izaurralde, who unexpectedly passed away on that date a year earlier. Izaurralde joined the institute as director in 2005. Organized by EMBO Member Ralf Sommer and Maria Ginz, the symposium celebrated her life and scientific achievements.

The speakers were EMBO Members Wink Filipsicz and Susan Gasser from the Friedrich Miescher Institute, Basel, Switzerland; Elena Coots, MPI for Biochemistry, Munich, Germany; Reinhard Lührmann, MPI for Biophysical Chemistry, Göttingen, Germany; Matthias Hentze, EMBL, Heidelberg, Germany; and Ramsof Pillai, University of Geneva, Switzerland. Each of them had crossed paths with Elisa Izaurralde at a different stage of her career and presented some of their latest findings that built on or related to Izaurralde’s work. And through sharing personal anecdotes they honoured Izaurralde’s personal impact.

The MPI plans to establish an annual ‘Elisa Izaurralde Memorial Lecture’ with the goal to highlight exceptional future contributions to the field and commemorate and honour Izaurralde’s scientific legacy.

Collaborative research on DNA repair and genome stability in Germany

On 1 January 2019, the German Research Foundation (DFG) established a new collaborative research centre on ‘Regulation of DNA repair & genome stability’. This interdisciplinary network brings together experts in structural biology, organic and biochemistry, cell and molecular biology, and genetic toxicology from Mainz, Darmstadt, Munich and Frankfurt, including EMBO Members Ivan Dikic, Peter Hopfner, Christof Niess and Helle Ulrich.

The primary aim of the consortium is to investigate and understand intrinsic and environmental sources of genome instability, their biological effects and the defense mechanisms that protect cells against genotoxic stress. The participating researchers will characterise the regulatory mechanisms and interdependencies of DNA repair systems. This research will provide insight into how the different repair and genome maintenance pathways manage to balance cell death and survival, genome stability and plasticity, and gene regulation.

Helle Ulrich of the Institute of Molecular Biology, Mainz, Germany and the centre’s spokesperson says: “The German Research Foundation is giving us the chance to establish a new research hub in this important area of biomedical science in Germany. Promotion of both innovative research projects and the structures that support them has provided us with the opportunity to exploit synergies and catch up with the world’s leading centres in this field.”

www.rfb1361.de

Artistic science communication at Heidelberg University

EMBO Young Investigator Annika Guse has established an artistic science communication workshop for bachelor and master’s students at Heidelberg University, Germany. Interested in ways to encourage and teach students about the communication of science to wider audiences, Guse developed the concept together with her sister, Stephanie Guse, a Vienna-based artist.

The goal is to teach students a method called ‘Thinking Hands’ to enable them to visualize scientific terminology. “Focusing on simple, arts-based methods allows them to constrain cells as well as purified cytoskeletal filaments to regular geometries, such as squares and other shapes. “The Nuit Blanche we decided to move the lab to the street,” explains Théry. “We wanted to turn our cellular cytoskeletons.

Meeting of actin filaments (red) and microtubules (blue) growing from the windows or the walls of the building.

Elisa Izaurralde Memorial Symposium

Celebrating women in science in Japan

On 23 June 2019, six EMBO Members participated in an international symposium for female researchers working on chromatin biology in Kobe, Japan. The event to celebrate and support female scientists from Japan and Europe took place one day before the joint annual meeting of the Japan Society for Cell Biology and Protein Science Society Japan.

The speakers included EMBO Members Geneviève Almouzni (Institut Curie, Paris, France), Ana Pombó (Max Delbrück Center for Molecular Medicine, Berlin, Germany), Danielle Rhodes (Nanyang Technological University, Singapore), Maria Elena Torres-Padilla (Helmholtz Zentrum München, Germany) and co-organizer Susan Gasser (Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland). Among the seven female scientists from Japan presenting their work was newly elected EMBO Member Noriko Osumi from Tohoku University.

The half-day scientific symposium was followed by an afternoon of activities based on the content of the EMBO Lab Leadership course for 70 participants. “I became interested in organizing this event after I learned that Japanese group leaders setting up their independent labs do not receive leadership training,” explains Gasser. She continues: “I felt that to support the promotion of female scientists in Japan, it was important to raise awareness of topics such as unconscious bias and gender-balanced leadership.”
Awards of Excellence

EMBO Members

Santiago-Ramón y Cajal National Award
Ángela Nieto, Institute of Neuroscience, Alicante, Spain, receives the Santiago-Ramón y Cajal National Award in Biology. The award is made by the Spanish Ministry of Science, Innovation and Universities. Nieto receives the honour for her pioneering research on an epigenetic-metabolism transition and its role in furthering understanding of the origins of cancer and degenera
tive diseases.

Israel Prize for Life Sciences
Adi Kimchi, Weizmann Institute of Science, Rehovot, Israel, won this year’s Israel Prize in Life Sciences for her pioneering research on mitochondrion dynamics and the role of the mitochondrial membrane in apoptosis, which has opened new advances in medical science.

The Biochemical Society awarded The Women in Science Award to Sarah Teichmann and colleagues from the University of Cambridge, UK. The award recognizes the important contributions to the invention and refinement of technologies enabling the identification of DNA well above its melting point, which is essential for many applications in genetics.

The Biochemical Society awarded the 2019 Goldsmith/Kline Prize to Sarah Teichmann from the Wellcome Sanger Institute, Cambridge, UK. The prize recognizes outstanding research in biochemistry carried out in the UK or the Republic of Ireland that has led to new advances in medical science. Sarah received the prize for her work on deciphering the molecular networks programmed to drive cell death in mammals, including the identification of DNA well above its melting point.

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20 years on: the latest in mitosis and meiosis

Mitosis and Meiosis Part A, Volume 144

20 years on: the latest in mitosis and meiosis

Mitosis and Meiosis Part B, Volume 144

For a complete and up-to-date list of EMBO events please go to events.embo.org

頓良機会 The next issue of EMBO Encounters will be dispatched in November 2019. Please send your queries, contributions, and news to communications@embo.org by 30 September 2019.
Plants cannot run when being attacked. They do, however, have a chemical defense mechanisms to cope with stress and deter predators. Jasmonate, for example, is a stress hormone produced in the leaves in response to extensive damage by crushing or herbivore feeding. Just like most stress signals in plants, jasmonate production is mediated by a wave of calcium increase, reactive oxygen species (ROS) production, and depolarization.

Mathur et al. investigated the effects of a very different type of injury: single-cell wounding in roots that could result from attacks by small insects, nematodes, or microbes. The researchers induced wounds by laser ablation to investigate the plant’s response to isolation, rather than the complex interplay between host and invader. They found that laser ablation, like other forms of wounding, induces an increase in calcium levels, ROS production, and depolarization. However, in this case the mechanism leads to jasmonene instead of jasmonate production.

The researchers around EMBO Member Niko Geldner also found that nematode attacks induce a similar response, and that ethylene production is required to antagonize nematode invasion, demonstrating the biological relevance of their observation.

Single-cell damage elicits regional, nematode-restricting ethylene responses in roots.

Peter Marhavý et al. Read the paper: emboj.embopress.org/content/early/2019/05/06/embj.201810973

EMBO Molecular Medicine
Topics will range from cell biology as a fundamental basis of biology to non-traditional model organisms and the use of computational modelling and biophysics to “build the cell from the ground up”.

Submit an abstract by:

3 September
for a poster

3 October
early registration deadline

Programme co-chairs

Elly Tanaka
Institute for Molecular Biology, Vienna/Austria, for EMBO

Sue Jaspersen
Stowers Institute for Medical Research, Kansas City/US, for ASCB

www.ascb.org/2019ascbembo/