Encounters

Solidarity with Ukraine

Displaced scientists share their experiences

Seeing is believing

Interview with EMBO Gold Medalist and new Member Prisca Liberali

Review Commons

Making preprint peer-review fully transparent

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#46
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Welcome to Encounters #46

Editorial from the EMBO Director

© Dave Guttridge

I am writing this preface as the sixth EMBO Director, having started in the role in January. I am delighted to welcome you to this issue of the magazine.

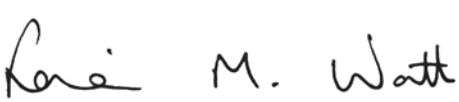
We look back on a year that has again presented EMBO with a number of challenges resulting from the COVID-19 pandemic. However, thanks to the continuous funding of the EMBO Programmes by EMBC, an intergovernmental organization of 30 countries, we were able to offer our funding programmes without restrictions and without interruption. We continue to adapt and develop them so that EMBO can live up to its mission of fostering the life sciences and supporting excellent researchers in Europe and beyond.

One current focus at EMBO is the initiative to increase participation in the EMBO Programmes throughout Europe. Until 2024, life scientists in or going to Croatia, Czech Republic, Estonia, Greece, Hungary, Italy, Lithuania, Luxembourg, Poland, Slovenia and Turkey are eligible to apply to new and adapted schemes (page 12). Open Science also remains high on the EMBO agenda. We continue to accelerate the dissemination of scientific results using refereed preprints and to make preprint peer-review fully transparent through Review Commons (pages 8 and 9).

In March, EMBO called for solidarity of the life sciences community with Ukrainian researchers and set up a list to which scientists can add offers of assistance. This solidarity list has received more than 500 entries. On pages 4 and 5, three displaced Ukrainian women share their experiences.

We spoke with EMBO Gold Medalist and new EMBO Member Prisca Liberali about her career and what inspired her to become a scientist (pages 18 and 19). We also present some new developments from members of the EMBO communities. We report on several exciting initiatives, as well as awards, books and publications (pages 26 to 33).

I hope you will enjoy the magazine. We will continue to let you know about the latest developments at EMBO throughout the next year and are always interested in your feedback.



Fiona M. Watt
Director, EMBO

Solidarity with Ukraine

Ukrainian scientists who have found shelter and employment elsewhere in Europe share their experiences

By Astrid Gall

EMBO has called for solidarity of the life sciences community with Ukrainian researchers and set up a list to which scientists can add offers of assistance. This solidarity list has received more than 500 entries from across the world since 1 March.

When EMBO followed up in September, 23 respondents had supported one or more Ukrainian scientists, e.g., by providing accommodation or employment, or arranging contacts. Here, three Ukrainian women who left their country share experiences and thoughts from their journeys.

embo.org/solidarity-with-ukraine

scienceforukraine.eu

"The first feeling I had was relief that I had brought my children to a safe place."

Nadiia Zubchuk

Nadiia Zubchuk, a biologist with a Masters degree and mother of two, had lived in Kyiv since attending university. She saw the EMBO solidarity list on social media and first did not consider it an opportunity for her: she was a preclinical trial specialist and had not worked in research for eight years. But when Kyiv became surrounded from three sides and she received a personal message of concern from a partner company, Zubchuk contacted several scientists abroad. She is grateful for the many positive responses: "It is so touching, all this concern and support!" Pierre Hainaut, director of the Institute of Advanced Biosciences in Grenoble, France, replied very fast and encouraged Zubchuk to come as fast as possible.

Within a week of the first call and after a two-day bus journey, Zubchuk arrived with her daughters in March and felt great relief. She was employed as a research engineer for one year; supportive colleagues arranged accommodation and helped her to enrol her children in school and kindergarten. Zubchuk could choose whom to work with and joined Beatrice Eymin's group, whose research matched her background best. She is now working on approaches to overcoming resistance to tyrosine kinase inhibitors in non-small cell lung cancer. She thinks that the experience she and other Ukrainians scientists are gaining abroad will be needed in the country in the future.

"For re-building our country we will need good specialists."

Natalia Nechytailo

International scientific networks brought Natalia Nechytailo from Western Ukraine to Poland. She was studying in the 3rd year for a Bachelor in biochemistry and biotechnology at Vasyl Stefanyk Precarpathian National University in her hometown Ivano-Frankivsk when the war started. The professors encouraged students to find research opportunities abroad. Nechytailo first wrote to a US scientist she found through ScienceForUkraine, which includes offers from the EMBO solidarity list. He suggested contacting Karolina Szczepanowska, group leader and EMBO Installation Grantee at the International Institute of Molecular Mechanisms and Machines, Polish Academy of Sciences, in Warsaw.

Nechytailo spent a six-week summer internship focused on mitochondria in Szczepanowska' lab, supported by an EMBO grant. "The support of scientists abroad warms my heart and makes this dark time a little bit brighter," she says. Nechytailo learnt several techniques she considers helpful for her final year of study. Her university continued from September with online and in-person teaching, and Nechytailo will return to Warsaw to perform research for her dissertation. She plans to study for a Masters degree abroad and use her knowledge to rebuild the science community in Ukraine.

"I was surrounded by very nice people and will remember that forever."

Daria Andrieieva

In early March, Daria Andrieieva and her mother realized they needed to leave their hometown Kyiv as it became more and more dangerous and frightening. They fled to Prague by train, where her mother has a contact who arranged accommodation for a few days. Andrieieva, who had studied in the 2nd year for a Bachelor in biology at Tarasa Schevchenko National University, soon understood that she needed a job. She contacted several scientists across Europe through the EMBO solidarity list, which the tutor had shared with students. One of them was Petr Bartunek, group leader and former EMBO/HHMI Scientist at the Institute of Molecular Genetics of the Czech Academy of Sciences, Prague.

Andrieieva met Bartunek and was employed as a technician. Supportive colleagues helped her to find a place to live and open a bank account, and she made some good friends. In the nearly five months Andrieieva spent in Bartunek's lab, which investigates cell differentiation, she learned basic molecular biology techniques and how to handle zebrafish. She says: "I am of the COVID generation. I had never been in a lab before." Andrieieva is now studying neuroscience in the 2nd year at the University of Dundee, UK. The solidarity list also helped with this move: she had contacted a professor there, who advised her to apply, and shared information about programmes for Ukrainians and courses.

The following individuals and their institutions also provided information about how they have helped Ukrainian scientists:

EMBO Member Claudia Bagni, Amelie Baud, EMBO Member Peter B. Becker, Emilie Brasset, Piers Hemsley, Ricardo Henriques, Martin Higgs, EMBO Member Urs Jenal, EMBO Member Matthias Mann, Antonio Martínez-Murcia, Espen Melum, EMBO Member Poul Nissen, Paulo Pereira, Head of EMBO Press Bernd Pulverer, James Sturgis, Kathrin Thedieck, Alain Townsend, EMBO Member and Director Fiona Watt, and EMBO Member Wolfgang Zachariae.

Thank you!

Refereed preprints in applications for EMBO Postdoctoral Fellowships

EMBO endorses refereed preprints in the publishing record of applicants and seamlessly connects them to journal publication

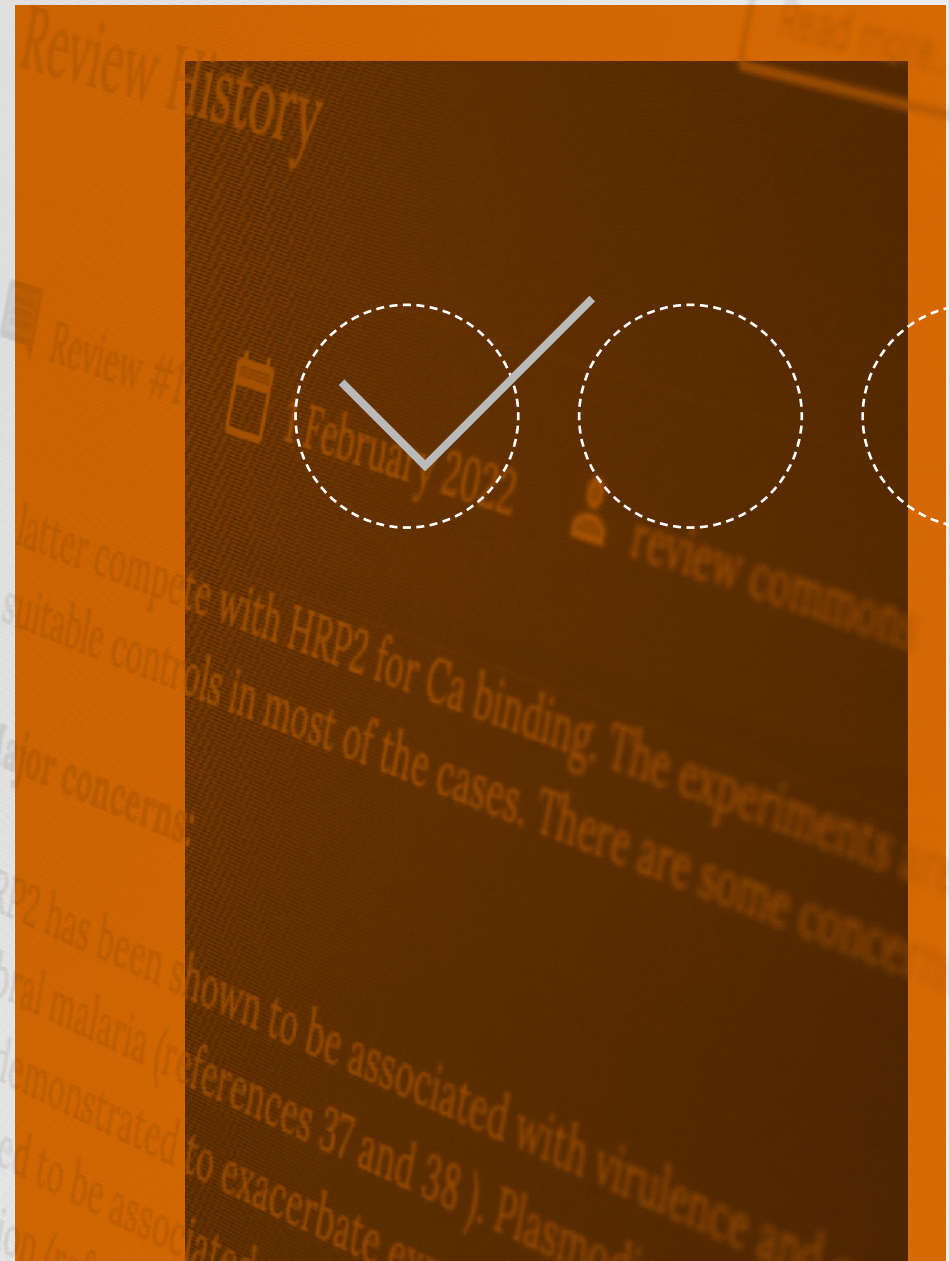
By Tilmann Kiessling

After the successful completion of a trial period, EMBO will continue to accept refereed preprints as equivalent to publications in peer-reviewed journals in the evaluation of applications for EMBO Postdoctoral Fellowships. Refereed preprints are packages of a preprint, the reviewers' reports and the authors' responses.

EMBO had already considered unrefereed primary research papers posted on preprint servers such as bioRxiv or medRxiv in the evaluation of applications for EMBO Postdoctoral Fellowships. But a published or accepted first-author publication in an international peer-reviewed journal was still a requirement for eligibility. "We now consider publications in journals and refereed preprints equal for applications", says Kelly Sheehan-Rooney, Head of the EMBO Fellowship Programme.

With this move, EMBO is leading the way by endorsing refereed preprints in funding decision-making, thus further strengthening its support of young scientists who need to demonstrate their peer-reviewed research output as soon as possible. EMBO and ASAPbio launched Review Commons, the preprint peer-review platform, in 2019. Authors can submit their preprint to Review Commons for peer-review, receive reviewers' reports and respond, and transfer the refereed preprint to one of 17 affiliated journals, including all EMBO Press journals: The EMBO Journal, EMBO Reports, Molecular Systems Biology and EMBO Molecular Medicine.

In June 2022 and following the Transparent Peer Review at the EMBO Press journals, Review Commons made preprint peer-review fully transparent (page 8): the reviewers' reports and the authors' response for each manuscript peer-reviewed are posted to bioRxiv or medRxiv as soon as the authors submit their refereed preprint to one of the affiliated journals.



EMBO New Venture Fellowships

Supporting early-career life scientists to enter a new field

By Astrid Gall

The EMBO New Venture Fellowships were launched in 2021 in memory of the passionate scientist and EMBO Member Suzanne Eaton. Three fellowships were awarded in the first year: to Godwin Aleku who went from the University of Cambridge, UK, to ETH Zurich, Switzerland; to Prejaas Tewarie who went from VU University in Amsterdam, the Netherlands, to Universitat Pompeu Fabra in Barcelona, Spain; and to Adel Al Jord, who shares his experiences here.

The fellowship is a great opportunity to take a break, learn something new and look at your work with a fresh perspective. I would highly recommend it.

Adel Al Jord

© Patrick Imbert

Getting out of the bubble

Meet Adel Al Jord, EMBO New Venture Fellow at the University of Zurich

By Rosemary Wilson

"I needed to get out of my single cell bubble!" says Adel Al Jord, who swapped Paris for Zurich for a three-month EMBO New Venture Fellowship. Al Jord is a postdoctoral researcher at the Center for Interdisciplinary Research in Biology at the Collège de France and interested in how cellular forces affect cell fate. After his latest project, on how forces in female germ cells drive fertility, came to an end, he felt the need to take a step back and learn new skills. His fellowship allowed him to do just that.

"By chance I heard EMBO Member Lucas Pelkmans from the University of Zurich talk about his work on system biology approaches in multi-cellular environments and wanted to learn more," Al Jord explains. What he gained from his time in Switzerland was more valuable than just a new skill set. "The experience gave me a much more global view of my science and has changed my career trajectory," he says. "It was very refreshing to experience how another group conducts their lab meetings, how they work together and how they approach their research."

Al Jord brought home new collaborations, a renewed motivation and enthusiasm for the future. "Too often we get too focused on our own work and get used to a certain way of thinking," he says. Al Jord now plans to establish his own lab in mechanobiology that would include a systems biology component and feels his fellowship adds credibility to his new career plans: "I think it has given my research a new edge!"

Review Commons makes preprint peer-review fully transparent

By posting a refereed preprint, researchers can demonstrate their output at an early stage

By Thomas Lemberger

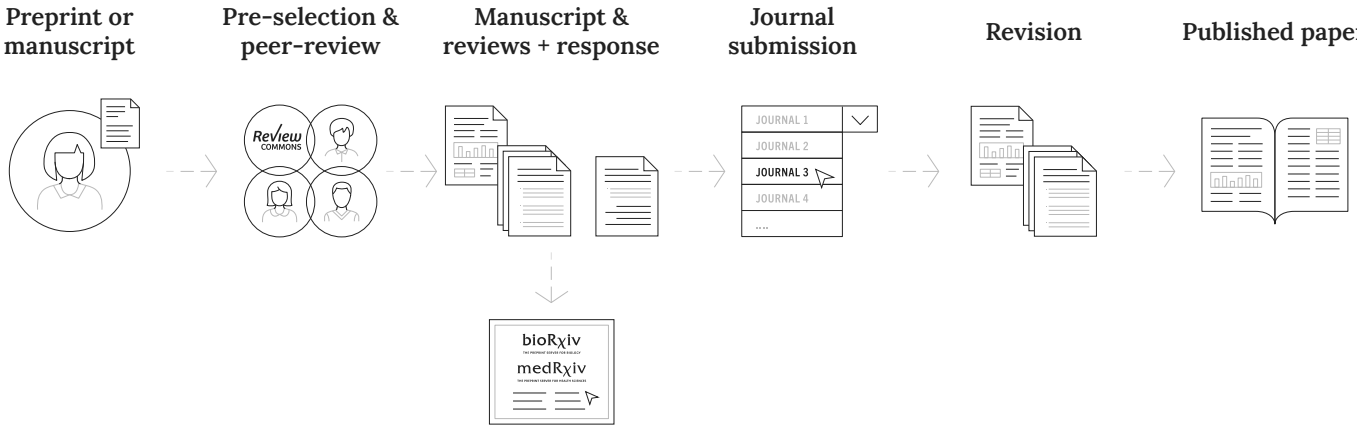
In a major step toward promoting preprint peer-review as a means of increasing transparency and efficiency in scientific publishing, peer-reviews and the authors' response are posted by Review Commons to bioRxiv or medRxiv when authors decide to transfer their refereed preprint to a journal.

Preprints with public peer-reviews (a. k. a. "preprint+" or "refereed preprints") provide a new publication route for scientists to rapidly communicate and access research that has been reviewed by experts. By posting a refereed preprint, researchers can demonstrate their peer-reviewed research output at an early stage, before final endorsement and publication by a journal. In addition, the peer-reviews provide readers with a detailed and transparent assessment of the validity of the study and the strength of its conclusions. To accelerate the formal publication process, refereed preprints produced by Review Commons can be seamlessly transferred to 17 journals[1] published by EMBO Press, eLife, ASCB, The Company of Biologists, Rockefeller University Press and PLOS without starting the entire process anew, thus avoiding redundant rounds of peer-review.

At Review Commons, posting reviews publicly is always accompanied by the possibility for authors to post a detailed response to the points raised by the reviewers simultaneously. While the peer-review process aims at involving independent experts ("peers") in providing a critical analysis ("review") of a work to verify its validity, correct mistakes and improve it, maintaining a balanced scientific discourse is essential for a productive outcome. Review Commons therefore considers the right of authors to reply to critiques raised by reviewers as an integral and fundamental part of the peer-review process.

In a survey, Review Commons' authors were asked the question: "What is the earliest stage that would be acceptable to post the reviews?" The results (1,095 respondents) show that many authors feel it is acceptable to post the reviews as soon as the refereed preprint can be transferred to a journal. The data also reveals that the ability to formulate a response to the reviewers is a critical consideration. These results guided the new Review Commons policy that leaves sufficient time for authors to prepare a thoughtful response, which is then posted together with the review when the refereed preprint is transferred to an affiliate journal for consideration.

1 Affiliate journals: The EMBO Journal, EMBO Reports, Molecular Systems Biology, EMBO Molecular Medicine, Life Science Alliance, eLife, Journal of Cell Biology, Molecular Biology of the Cell, PLOS genetics, PLOS biology, PLOS computational biology, PLOS pathogens, PLOS one, Journal of Cell Science, Development, Disease Models & Mechanisms, Biology Open.



Refereed preprint

Refereed preprints make new peer-reviewed research quickly accessible to readers. But they should also provide tangible benefits to the authors in terms of academic credit and recognition. To this end, the EMBO Postdoctoral Fellowship Programme has extended the eligibility criteria to formally include refereed preprints (page 6). Specifically, a first author preprint with public in-depth peer-reviews obtained from trusted independent peer-review platforms will be sufficient for eligibility to the programme.

A legitimate concern about publicly posting reviews is that some reviews could include remarks formulated in a too dismissive or aggressive tone. Review Commons editors will screen reviews for inappropriate content before sending them to the authors and before public posting, and request amendments from the reviewers when necessary. In addition, if authors strongly feel that serious issues remain with the reviews they receive, a formal procedure allows them to challenge a report in exceptional cases before making it public and transferring the manuscript to an affiliate journal. In cases of disagreement, it will also remain possible for authors to withdraw their manuscript from Review Commons without having to post the reviews.

It is still early days for preprint peer-review, and we will carefully monitor the response to these important policy changes. Adjustments might be needed but it is already clear that we have entered an exciting phase where a new research object—the refereed preprint—opens new avenues in scientific communication and the practice of transparent peer-review.

The article was originally posted on the Review Commons blog.

reviewcommons.org/blog

Review COMMONS

From salt-lovers to gene scissors

CRISPR pioneer Francisco Mojica talks about his discovery on the occasion of his election to the EMBO Membership

Interview conducted by Astrid Gall

How did your discovery of the curious DNA repeats in salt-loving archaea, and their function in these and other prokaryotes, came about?

In the 90s, I was doing something that had nothing to do with what I found. I was investigating the mechanisms of adaptation to changes of the salinity in extremely halophilic archaea. I carried out the first sequencing at the University of Alicante and found regularly interspaced repeats. Initially, I thought they were the result of a polymerase error or an artefact. Then I discovered a peculiar landmark of 21 repeats and decided to study their function.

Ten years later, my group found that one of the sequences separating the repeats in *E. coli* matched a phage, a bacteria-infecting virus, and searched the literature on genetic elements carrying spacer-matching sequences. We realized that an efficient infection of a strain containing a spacer with a virus matching it had never been reported. This was true for plasmids and representative strains of the main taxonomic groups of archaea and bacteria, so it was an acquired immune system. It was incredible!

How did the field settle on the name CRISPR?

First, we called the repeats TREPs, tandem repeats. They had also been reported in *M. tuberculosis* where they were named DRs, direct repeats. After genome sequencing of prokaryotes started, there were soon four or five different names. We described the family and called the repeats SRSRs, short regularly spaced repeats, in 2000.

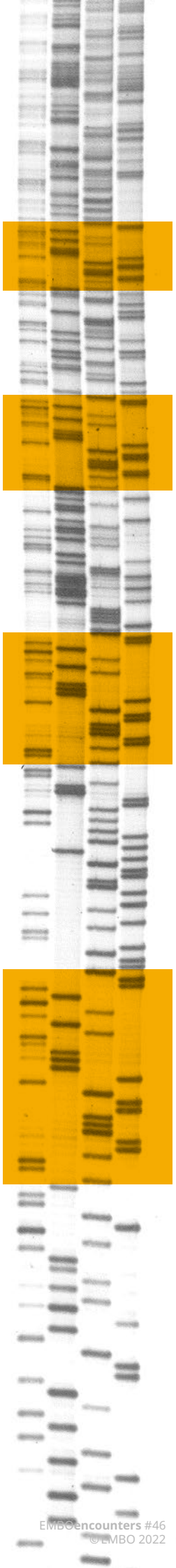
In 2001 I got an email from Ruud Jansen, who worked on the *M. tuberculosis* repeats. He suggested that we agree on a name and said that they would use SPIDR otherwise. I proposed CRISPR, clustered regularly interspaced short palindromic repeats, and a few shorter alternatives. CRISPR was not my favourite as it sounds like the Spanish word for "annoy". Ruud was very happy with it, and importantly it was a unique entry in Medline, so we agreed on it.

In 2005, when you published your seminal paper, did you foresee the success of CRISPR that would follow?

I am a microbiologist, and what we had in our hands was an acquired immune system. We first submitted the manuscript to Nature in 2003 and wrote that CRISPR will have a "tremendous repercussion in biological, biotechnological and clinical sciences" to convince the editor. We were only thinking about the function of the repeats, and there was no way to foresee any of the wonderful applications outside of prokaryotes that were developed later. These had no relation to the function. Gene editing came after 2012, when the mechanism and the elements were known. You have to know how things work to use them!

© Francisco Mojica

Francisco Mojica, professor of microbiology and group leader at the University of Alicante, Spain



© Francisco Mojica

Sequencing gel from 1992 showing DNA repeats of *Haloferax mediterranei*, the salt-loving organism Mojica worked on

The Santa Pola salterns near Alicante are home to halophilic archaea

Which of the many uses of the technology do you find most promising for practical applications?

The most promising application of CRISPR today is in agriculture: modifying crops to prevent the use of pesticides, enable them to grow in stress situations, grow faster or become more nutritious. Another is the use of CRISPR as sequence-specific antimicrobials, but that will need more development. I must be honest: CRISPR will not cure every single genetic disease in humans.

What do you find concerning?

There is a small concern that, if you give a CRISPR-based therapeutic agent to a person, you could generate a modification resulting in cancer. The chance of off-target effects is small, but it is there. My main concern is that not everyone has the right ethical principles and follows the rules. There are examples of scientists who have done wrong things with CRISPR.

What is your current research focused on?

There are six types of CRISPR, and one is almost completely unexplored. It lacks the equivalent of the nuclease Cas9, the main actor of CRISPR. My small group is trying to understand what this type does. I am very excited about our research because after many years suddenly everyone loves CRISPR. I like basic research: I understand that translation of basic research results into applications is important, but it is not what motivates me.

What interactions have you had with EMBO?

Before I found the repeats in archaea, I got an EMBO Short-Term Fellowship (now scientific exchange grant) during my PhD research. It was the first time I went abroad: I learned how to work on DNA topology at Paris-Sud University. It looked like topology could be susceptible to salinity changes, thus contributing to salt-adaptation. I was testing this hypothesis for a few months and, although the topology changed with salinity, I could not conclude any link with adaptation.

What does your election to the EMBO Membership mean to you?

I feel very proud that I become an EMBO Member. For me it is a recognition of my basic research and its repercussions outside of my field. It is also a great opportunity to participate in the promotion of life sciences.

Portrait photo by Manuel Castells
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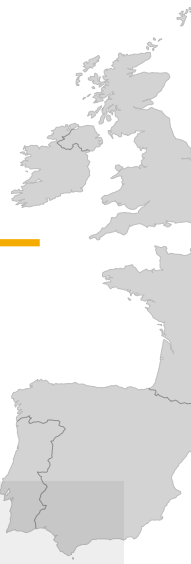

Increasing participation in the EMBO Programmes across Europe

Launch of funding and support schemes for life scientists in Croatia, Czech Republic, Estonia, Greece, Hungary, Italy, Lithuania, Luxembourg, Poland, Slovenia and Turkey

By Tilmann Kiessling

EMBO has launched further funding and support schemes for life scientists at all career stages in eleven countries. The schemes include grants for researchers displaced by the military invasion in Ukraine or other armed conflicts.

Life scientists in or going to Croatia, Czech Republic, Estonia, Greece, Hungary, Italy, Lithuania, Luxembourg, Poland, Slovenia and Turkey can apply to the schemes until the end of 2024. These countries are member states of the EMBC (European Molecular Biology Conference), the intergovernmental organization that funds the EMBO Programmes. The initiative aims to increase participation of scientists from across Europe in the programmes, especially in countries that currently benefit less from them.

The new schemes and support offerings are:

EMBO Solidarity Grants supporting life scientists displaced by armed conflicts

The grants will be available as one-year stipends for researchers to start, continue or finish their PhD thesis, for postdoctoral researchers, and for research stays by scientists at the professorial and group leader level. The research must be carried out in one of the eleven countries that have joined the EMBO initiative to increase participation. Applications for the grants can be submitted from 5 January 2023 until 15 February 2023.

Open Access publication in all EMBO Press journals at no cost for authors

EMBO Press offers Open Access publication in The EMBO Journal, EMBO Reports, Molecular Systems Biology and EMBO Molecular Medicine at no cost for corresponding authors based in one of the participating countries, provided that the authors are not covered by a transformational agreement.

Grants for participation in EMBO Courses & Workshops

Researchers at any career stage and from any discipline in the life sciences who are based in one of the eleven countries are eligible. They can apply for a grant of up to 700 euros to cover registration fees, travel and accommodation costs for all EMBO Courses & Workshops.

These new schemes and support offerings are in addition to those launched previously:

EMBO Postdoctoral Fellowships reserved for researchers applying to work in the participating countries

An interview is guaranteed to all applicants, provided their application passes initial screening for overall quality.

EMBO Advanced Collaboration Grants

A scheme for group leaders in the participating countries who wish to visit scientists in other EMBC Member States to develop or carry out collaborative projects, or to prepare joint grant applications.

EMBO Lecture Courses

Funding for lecture courses to train PhD students and postdoctoral researchers in the participating countries.

EMBO Lecture Series

Funding to invite EMBO Members and Young Investigators to give lectures in institutions in the participating countries.

Details of all schemes and offerings, including eligibility criteria and the application process, are available at embo.org/funding/increasing-participation-in-the-embo-programmes-across-europe

All these schemes and support offerings are funded with means from EMBC.

Engagement events in Poland and Croatia

Spreading the word about EMBO opportunities

By Astrid Gall

EMBO is raising awareness of its funding, training, networking, policy and publishing opportunities for life scientists in countries participating in the initiative to increase participation across Europe. June 2022 saw three engagement events in Poland and Croatia.

One event took place in Warsaw on 9 June. It was co-organized by the EMBO Fellowship Programme and EMBO Fellowship Committee at the Centre of New Technologies at the University of Warsaw. EMBO Member Magda Kornarska helped to develop the event's programme and gave a presentation. "Students participating in the event met excellent scientists. Such meetings often trigger new interests and open career possibilities, greatly enhancing the students' scientific development," says the deputy director for science at the International Institute of Molecular Mechanisms and Machines, Polish Academy of Sciences. Almost 50 early career scientists from ten institutions attended the event.

The participants learned about EMBO funding schemes, focusing on postdoctoral fellowships and short-term grants, received advice on preparing applications, heard from current and former fellows and grantees, and engaged in a Q&A session with the Fellowship Committee that met in Warsaw. Members of the Scientific Exchange Grants Advisory Board also attended the event. Committee and board members engaged in lively discussions about funding opportunities, research and career paths with the participants.

Agnieszka Winiarska, PhD student at the Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, shared her positive experience as a former EMBO Scientific Exchange Grantee. She also points to the value of the event for her own career: "The event changed my perception of the possibilities that young scientists have. I gained many ideas on how to plan a scientific career and prepare grant applications. Meeting committee and board members, and learning about their scientific journeys, was very inspiring."

EMBO also contributed to events organized by the Croatian Ministry of Science and Education, the Croatian Science Foundation, the University of Split School of Medicine and EMBL in Zagreb and Split on 7 and 8 June. A presentation by the EMBO Policy Programme gave an overview about EMBO and informed more than 100 participants about research and conference funding, EMBO Training and EMBO Press.

"The events are important because Croatian scientists are underrepresented among EMBO Fellows and Members. I am grateful to the EMBC Member States and EMBO for acknowledging the issue of lower participation and introducing new activities," says Lovorka Barać Lauc, Head of the Department for Young Researchers of the Croatian Science Foundation and Croatian EMBC Delegate.

Events in further countries are planned.

Connecting global communities online

EMBO and global partners delivered online seminars to train researchers in key skills and to spread the word about opportunities provided by the EMBO Programmes

By Adam Gristwood

Strengthening skills

In May 2021, travel restrictions were still in place across much of the globe. María Paulina Correa, an associate professor of social epidemiology at the University of Chile, spontaneously decided to take part in an EMBO online seminar in grant writing, organized locally by the Chilean Societies for Neuroscience, Biochemistry & Molecular Biology, and Cell Biology.

"I did not know what to expect at first, but my first experience of an online workshop was very positive," recalls Correa, who is based in Santiago. "I learned a lot and had the chance to interact with experts from all over the world. The trainers took me out of my comfort zone, helping me to refine and clarify my ideas and present them in an attractive way."

Correa promptly signed up for three more sessions, taking part in open sessions alongside an average of 50 other researchers and more personalized sessions with 10 to 15 participants. She was in the middle of applying for a major grant at the time and credits skills she learned for helping to strengthen her successful application, and for inspiring side projects such as podcasts, videos and a popular science article co-authored with EMBO Associate Member Christian González-Billault.

"One of our goals was to provide better training in soft skills. These events have provided hundreds of scientists with first-rate training, free of charge," says González-Billault, professor in cell biology at the University of Chile, and a local organizer of the webinars. "Chile is a long way from Europe, and travel restrictions during the pandemic have made this feel even more so. The webinars have provided an opportunity to democratize science, and essentially close gaps such as distance, language and other communication barriers."

Confidence and clarity

Sunil Laxman, an EMBO Global Investigator at the Institute for Stem Cell Science and Regenerative Medicine in Bangalore, India, says that it is important to recognize that effective communication is a learned skill.

“Being able to communicate science in a clear and engaging way is not some mystical natural talent: it is a skill that can be learned and improved," says Laxman, who was a mentor during an oral communication webinar.

The event formed part of a new EMBO | India Bioscience series that was launched in the wake of the pandemic in 2020. So far, three open seminars have attracted more than 750 participants. Smaller groups have taken part in more personalized training.

“In our hands-on session, participants were required to prepare poster presentations for different audiences, including a ten-minute talk, a two-minute elevator pitch and a 30 second flashtalk,” Laxman explains. “Shorter presentations are often the hardest. But by the end of the seminars, it was clear attendees were embracing our key points, which included clarity, messaging, identifying with audiences and practice.”

Building connections

EMBO has also co-developed online courses with Taiwan’s national academy, Academia Sinica. Yen-Ping Hsueh, an EMBO Young Investigator, was a host and moderator of seminars in March and June 2021.

“It was a wonderful experience,” says Hsueh, who helped guide participants and give them personalized feedback. “Skills such as writing papers or grants are not typically part of scientific training. But they are invaluable across all career stages."

A total of 18 young principal investigators took part in training on grant writing, while more than 100 PhD students on the Taiwan International Graduate Program took part in training on scientific writing. Participants in a more personalized session also received constructive feedback from trainers and peers.

“Lecturers provided a terrific combination of skilled teaching, interesting assignments and individual guidance," she says. "I hope that the seminar series will become a regular fixture in our academic calendar.”

New opportunities

Working together with Singapore’s Agency for Science, Technology, and Research (A*STAR), EMBO also co-ordinated three informational webinars aimed at researchers in the country in early 2022.

“EMBO Programmes offer many opportunities for life scientists to collaborate and advance their career in science and research,” says Isabelle Tan, who works for A*STAR’s people development and planning office. “Participants were able to engage with scientists based in Singapore who have taken part in EMBO Programmes and gain valuable tips on the application and interview processes. The webinars were a really relatable way of reaching out to our research community."

Each webinar attracted 35 to 40 participants. They provided first-hand insights into the EMBO Fellowship Programme, the Young Investigator Network, and Courses and Workshops. "We have seen an increase in interest in the EMBO Programmes amongst our community as a result of these webinars," Tan says.


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Sustainable transformations in science

Researchers and their institutes are turning to data-driven approaches to make science more sustainable

By Adam Gristwood

Science has a crucial role to play in reversing the global cycle of environmental decline. But research organizations can also help drive change by thinking more sustainably in-house. “The big transition needs to come from society, but if scientists and institutes can set a better example this can be very impactful,” says Gisou van der Goot, EMBO Member and a former Dean of the School of Life Sciences at the Swiss Federal Institute of Technology Lausanne (EPFL), who now works as the organization’s first ever Vice-President for Responsible Transformation.

Since van der Goot began in her role two years ago, she has overseen a multitude of sustainability-focused actions on the EPFL campus. These include initiatives to reduce the carbon footprint of the institute’s catering, energy consumption, and daily and international travel. “We want to turn our campus into a living laboratory—a responsible community, with student involvement,” she says. “The most important place to start is by collecting data as this can help organizations to identify strategies that have the biggest impact.”

By putting figures on their institute’s carbon footprint, air miles and lab waste, a group of scientists including Jeroen Dobbelaere, a former EMBO Postdoctoral Fellow and now a senior scientist at the Max Perutz Labs in Vienna, has created a source of inspiration and activism called Climate@MaxPerutzLabs. “With this knowledge it was possible to achieve the necessary buy-in and begin to set all-important targets for actions, such as waste and energy-use reduction,” he says.

Dobbelaere, who has long been interested in combining cell biology research with the environment, also runs workshops that aim to inspire other researchers. “For me, the most important part is to teach students to integrate sustainability into their work,” he says. “Scientists can apply their skills in many different ways, from the analysis of statistics, to learning what drives social change. Sometimes it is difficult to measure progress, but on the other hand I think grassroots groups have made a big impact.”

As every organization is different there is no one-size-fits-all method to developing a sustainability strategy. But Brendan Rouse, a sustainability officer at EMBL in Heidelberg, says that there are nevertheless tried-and-tested methodologies that organizations can turn to. “One way to start is by carrying out a materiality assessment which gathers the opinions of a wide range of people,” he says. “This can involve interviews with internal and external stakeholders, reviews of approaches taken by similar institutes and charting relevant environmental topics.”

Taking this approach, EMBL has established three work streams that include objectives to achieve environmentally responsible research, to explore ways life science research can further contribute to solving environmental challenges, and to promote sustainable science beyond the institution. “When developing a sustainability strategy for a complex organization, it is important to take a step back and look at the bigger picture,” Rouse says. “But actions taken by individuals are critical in achieving a more sustainable organization; and I would recommend a great place to start is to make yourself aware of your surroundings and realize what you can personally control.”

Extra funding for hybrid meetings

Organizers of EMBO Courses & Workshops that will take place in hybrid formats can apply for additional funding of 10,000 euros

By Tilmann Kiessling

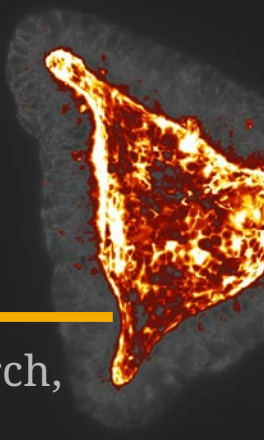
Until the end of 2023, EMBO is providing additional funding for EMBO Courses & Workshops that enables organizers to combine in-person with virtual meetings in hybrid formats. The funding is available for hybrid meetings that will take place in 2024. By offering participants the option to attend in-person or virtually, the meetings can be more inclusive, easier to access and more environmentally friendly.

"EMBO encourages organizers of EMBO Courses & Workshops to experiment with hybrid meeting formats, and extra funds are available to cover the additional costs," comments Fiona Watt, EMBO Director.

Since January 2022, life scientists who applied for funding to organize a hybrid EMBO Practical Course or Workshop in one of the 34 EMBC Member or Associate Member States, or a meeting funded together with The Company of Biologists in Brazil, Canada, China, Japan, Mexico or South Korea, have been able to apply for additional funding of 10,000 euros.

Prior to reaching this decision, EMBO interviewed conference organizers and participants, and consulted members of the EMBO Young Investigator Network in a survey, to learn what life scientists value most about scientific meetings, and if or how their requirements could be addressed by virtual meetings. The results are summarized in the report *The values of scientific conferences in a virtual framework: analysis and practical options*.

embo.org/documents/courses_and_workshops/reports/values_of_scientific_conferences_in_a_virtual_framework_report.pdf



Seeing is believing

Molecular cell biologist Prisca Liberali talks about her research, inspiration and work-life balance

Interview conducted by Astrid Gall

Prisca Liberali is a senior group leader and EMBO Young Investigator at the Friedrich Miescher Institute for Biomedical Research (FMI) in Basel, Switzerland. In 2022, she became an EMBO Member and received the EMBO Gold Medal. The interview was conducted on the occasion of the award of the gold medal.

What or who has inspired you to become a scientist?

My biggest inspiration were my high school teachers for science and maths. I remember the exciting moments when we were doing experiments. There were also my parents: my mother, who is an artist, always helped me to find my authentic self and follow my dreams; my father is an engineer, and we built a lot of different things and did experiments.

Has there been a defining moment or a turning point in your career?

I trained as a physical chemist, and I still remember when I started my PhD in a biology lab. The turning moment was the first time I saw a cell under a microscope. That was the moment I realized that seeing is believing!

The other important moment was when I started my lab here at the FMI with very challenging and ambitious ideas, and without a lot of preliminary data on what I wanted to do. So I spent some time in the lab of Hans Clevers, who is an EMBO Member, to work on organoids.

What is your current research focused on? Why is it important?

We work on how individual cells can create multi-cellular systems. These are, in a way, tissues that are built *in vitro*, so we create mini-organs. We are trying to understand how these cells co-ordinate their behaviour to create higher-order structures and these patterns of multicellular systems, such as intestinal organoids.

We can use organoids to understand not only healthy organ development, but also what goes wrong during diseases. We can take biopsies from patients and create these small organs *in vitro* to understand the emergence of the disease, its regulation and the best treatment. We are currently investigating human-to-human variability in organoid development and colon cancer.

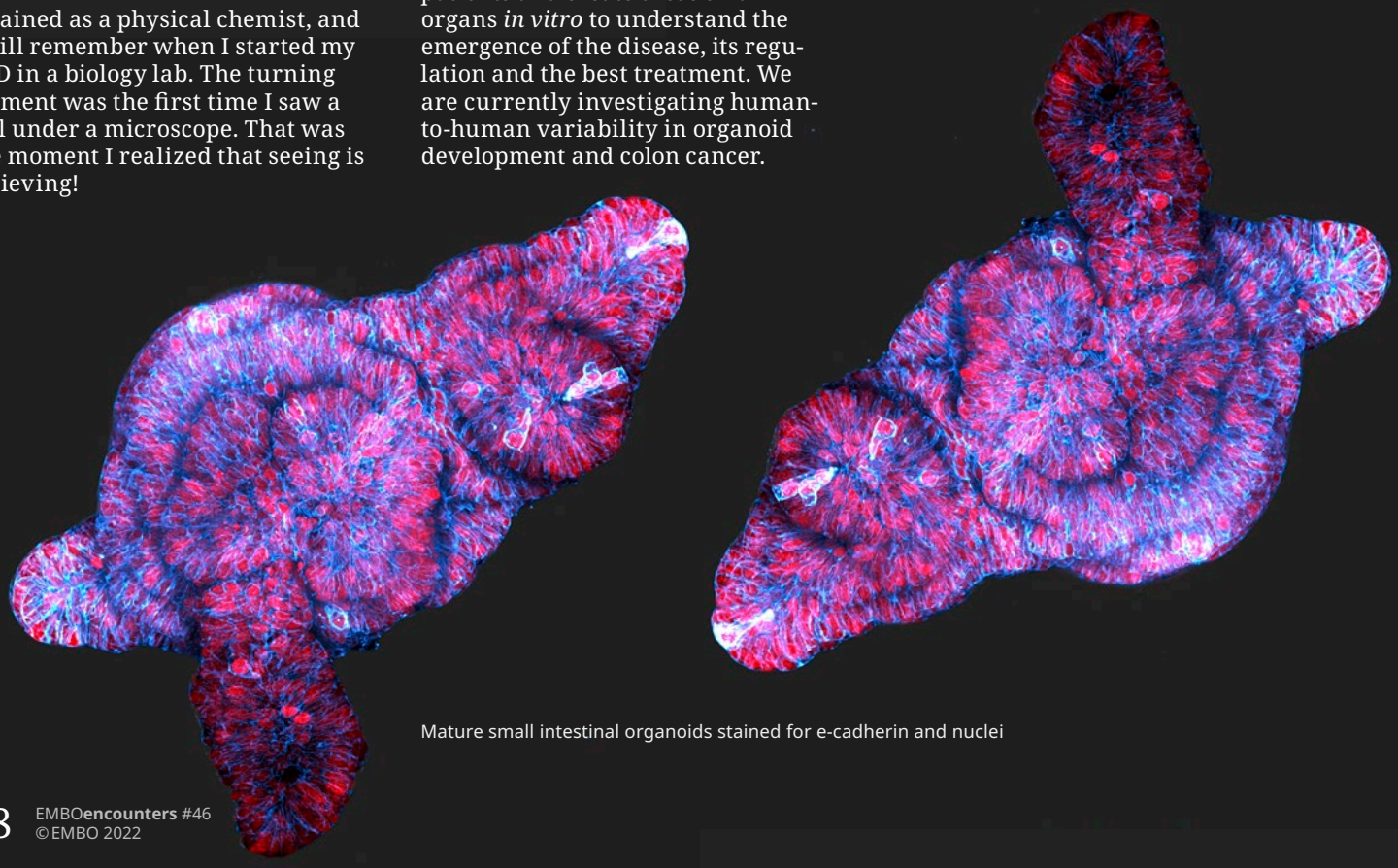
Why did you choose intestinal organoids to work on?

Organoids are extremely accessible for imaging, so we can get to the core of their cell biology. Intestinal organoids are well-organized spatially: they have a shape in contrast to many others. They display properties that are present *in vivo*, and we can recapitulate many of them *in vitro*.

Are there challenges in your research field that still need to be addressed?

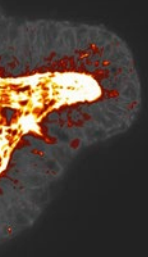
The main challenge is to understand what the properties of tissues on the multicellular scale are. There are also technical challenges: We do not have intracellular and full tissue-scale resolution, or the temporal resolution necessary for fast processes that happen over a long period.

Original images courtesy of EMBO Member Prisca Liberali and Gustavo Quintas Glasner de Medeiros



Mature small intestinal organoids stained for e-cadherin and nuclei

Small intestine organoid stained for actin



You have co-led the development of a new light-sheet microscope. Why is it innovative? What do you use it for?

Our light-sheet microscope can image organoids from individual cells to fully formed organoids up to two or three weeks. What it can do is a sheet of light in a 3D printed chamber, and this sheet of light is able to illuminate the sample very mildly. This allows us to grow organoids in their environment for weeks.

What does receiving the EMBO Gold Medal mean to you?

Receiving this prize gives me a big honour, and I am very happy about it. The other side is that it is an incredible recognition for the lab and for the lab members. They have innovative spirit and are constantly thinking outside the box.

I really appreciate the values of EMBO and what the organization is doing for the research community, Open Science, inclusion, diversity and mentoring at all levels from early to senior scientists.

What is your advice for young scientists starting a career in the life sciences?

My advice for young scientists is to find their genuine self and to try to find what authentically is important for them, and not be afraid of then following those desires and ambitions. To be bold and speak up was also very important for me.

You are a highly successful young group leader. How do you manage to balance your personal life and your work? What do you do to switch off?

My best way to balance my work and my personal life with my two children is to do a lot outdoors: I go hiking, skiing in winter, climbing and horseback riding. That really helps me to free my mind. I think it is best to find a good balance of energy requirements and time.

When do you get your best ideas?

Being outside helps a lot, but I have a very long commute. I live in Zurich and spend an hour on the train each way. For me, it is a good place to start a thought, finish it and find time to reflect. The train probably is the place where I have my best ideas.

Watch a video at
youtu.be/iS2kQyU_kZY

Cell Bio 2022 takes place in person

Scientists from all over the world reconnect at the global forum for biology of the cell

By Rosemary Wilson

"At Cell Bio 2022 we are excited to be able to showcase the high-level science being done in the less visible corners of our community."

Maya Schuldiner, EMBO Chair, EMBO Member and professor at the Weizmann Institute of Science

© Michal Eisenberg-Bord

After two years of online meetings, Cell Bio, the joint meeting of the American Society for Cell Biology (ASCB) and EMBO, takes place in person in Washington, DC from 3 to 7 December 2022.

This year's programme places a strong emphasis on diversity. The organizers ensure that science from all groups and areas of the community, including researchers from smaller and less well-known institutions, early-career scientists and under-represented groups, is represented at Cell Bio 2022.

The varied five-day programme consists of plenary talks, workshops and symposia, alongside an extensive poster session and vendor exhibition. This year's keynote lecture is given by Alice Y. Ting, professor at Stanford University. Ting uses chemical and synthetic biology approaches to address cell biology questions, demonstrating how fresh perspectives can enable important breakthroughs. The recipient of the EMBO Gold 2022, Prisca Liberali, senior group leader at the Friedrich Miescher Institute for Biomedical Research in Basel, presents her research that uses organoids to explore multi-cellular systems.

"At Cell Bio 2022 attendees can expect the unexpected. Our efforts to integrate all parts of the cell biology community and our science have led to the most diverse programme yet."

Avery August, ASCB Chair and professor at Cornell University

© Cornell University

CELL BIO
An ASCB | EMBO Meeting
Dec. 3-7, 2022 • Washington, DC

Discounted registration rates are available for EMBO community members.

ascb.org/cellbio2022

Experiments that enhance peer-review

New handbook guides funders in exploring alternative approaches to making tough decisions

By Adam Gristwood

When it comes to selecting the best candidates, funders face tough challenges. One is when a subset of shortlisted applications seems almost too difficult to decide between, increasing the risk of biased selections—known as the "grey zone" problem. Several organizations have piloted alternative methods of evaluating proposals. Their experiences are brought together in *The experimental research funder's handbook*, published by the Research on Research Institute (RoRI), an international consortium of funders, academic institutes and technologists, including EMBO.

Sandra Bendiscioli and Michele Garfinkel of the EMBO Policy Programme are amongst the authors of the handbook, which provides practical and evidence-based guidance for enhancing peer-review when making funding decisions. One section makes the case for how experimentation in peer-review has the potential to improve fairness and efficiency in the selection process. Another focuses on pros and cons of methods such as partial randomization, which complements traditional peer-review with a lottery for a limited selection of applications that fall within the "grey zone".

The handbook also includes a multitude of tools, checklists and case studies that organizations can use to design, implement and evaluate their own approaches. "Peer-review is a crucial mechanism for quality control, but there are opportunities to improve it," says Bendiscioli. "This starts with seeing what can be done differently, undertaking evidence-based evaluations and iteratively scaling up successful approaches that can hopefully reduce bias and increase efficiency in the application process."

DOI: 10.6084/m9.figshare.19459328.v3

researchonresearch.org

Boosting standards in synthetic biology

BioRoboost project has driven conversations on developing standards in synthetic biology

By Adam Gristwood

Standardization is increasingly important as the field of synthetic biology matures, with concerns about cost, technical obstacles and flexibility balanced against the potential to improve safety, efficiency and public trust. The EU-funded BioRoboost project aimed to drive international conversations and actions on development, setting, adoption and continued evolution of effective standards. Experts who took part in the initiative hope these can support synthetic biology researchers in much the same way that electrical engineers can turn to transistors or resistors.

BioRoboost brought together experts from more than 20 organizations across academia, industry and politics. This included Michele Garfinkel, Head of the EMBO Policy Programme, who initiated discussions on standards in biosafety, alongside collaborators from Biofaction in Vienna, Austria. The team recently co-authored a comment paper discussing bottlenecks and opportunities for synthetic biology biosafety standards.

Other outcomes include the white book *Standardisation in Synthetic Biology* with recommendations for policymakers, a *Biocontainment Finder*, which supports search and retrieval of containment strategies, and contributions to the development of specific standards, including an update of the *Standard European Vector Architecture* developed by a team led by EMBO Member Víctor de Lorenzo.

"These outcomes will support the way synthetic biology is carried out at all levels and provides an important foundation for future initiatives," says Garfinkel, "Now these tools are out there, we hope researchers will use them to advance their work."

DOI: 10.1038/s41467-022-29889-y

standardsinsynbio.eu

What does it mean to be an EMBO Member?

As we share the results from the EMBO survey of the life sciences community, it is a good time to reflect on what EMBO Membership means

By Fiona Watt

What started in 1964 with the first EMBO Member cohort of 169 life scientists elected from within Europe has now grown into a community of close to 2,000 EMBO Members and Associate Members in Europe and beyond.

Election as an EMBO Member recognizes a life scientist's research excellence and outstanding achievements. EMBO Membership is a lifetime honour. Our Members guide the execution of EMBO Programmes and activities. Members serve on EMBO Council, the body leading EMBO; on committees to select recipients of fellowships and grants; and on Advisory Editorial Boards for EMBO Press, the EMBO scientific publishing arm. They carry out scientific peer-reviews and act as interviewers in selecting the next generation of life scientists to receive funding from the EMBO Programmes. Collectively, EMBO Members influence the direction of European science and strengthen research communities.

EMBO Associate Members are based outside the 30 countries of the EMBC (European Molecular Biology Conference), the body that funds the EMBO Programmes. Associate Members have been elected from the very beginning of the organization. Many of them have close ties to researchers based in Europe. Today, 182 scientists from the EMBO Membership of 1,974 researchers are Associate Members. EMBO Members and EMBO Associate Members are now based in 27 out of the 30 EMBC Member States, and in another 15 countries.

Each year, half of the new Members are elected directly by existing EMBO Members and the other half are selected by EMBO Council based on the recommendations of the EMBO Membership Committee. The primary criterion for consideration is scientific excellence. The committee also considers geographic factors, small or emerging research fields, gender and particular contributions to the scientific community.

Of the initial 169 EMBO Members in 1964, only two were female. Today, female EMBO Members comprise a fifth of the membership. This year, 36 percent of newly elected members were women. By raising awareness and encouraging the nomination and selection of more female scientists, we continue to work towards gender parity, reflecting the major contributions and achievements of women scientists.

How do the members perceive themselves? What do other scientists think of EMBO Members? The EMBO survey, conducted in November and December 2021 yielded 3,533 responses from 37 countries. One of the goals of the survey was to understand the needs of respondents as well as their awareness and perceptions of EMBO. Among the survey respondents, 773 were EMBO Members and Associate Members.

EMBO Members: the survey findings

Respondents who were EMBO Members, or were aware of the membership, were asked about the value of being a member (figure 1).

EMBO Members indicated networking and collaboration, recognition in the community of life scientists, involvement in EMBO Programmes, policy work and career advancement as the most valuable aspects of EMBO Membership. Being recognized as a member of an elite group and influencing policies to shape the future of life sciences were important to them. However, access to scientific or policy expertise and resources, and recognition by local/regional government were considered of lower value.

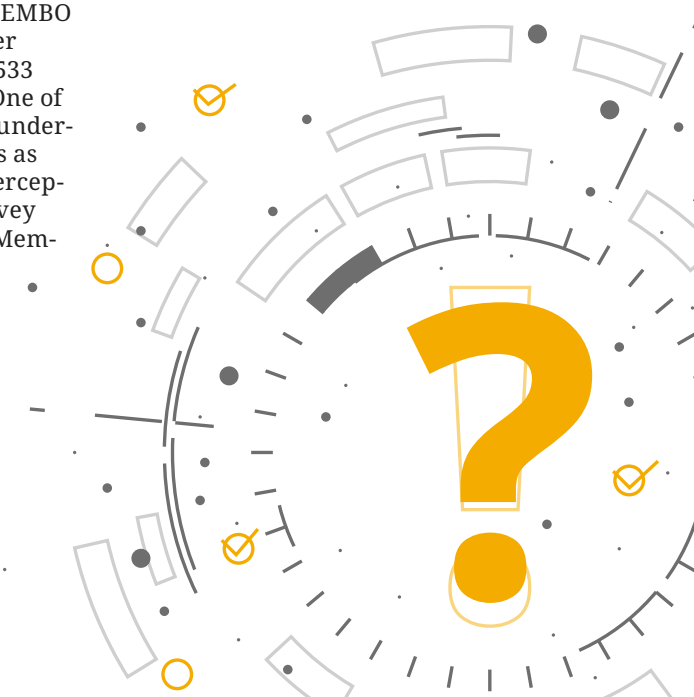
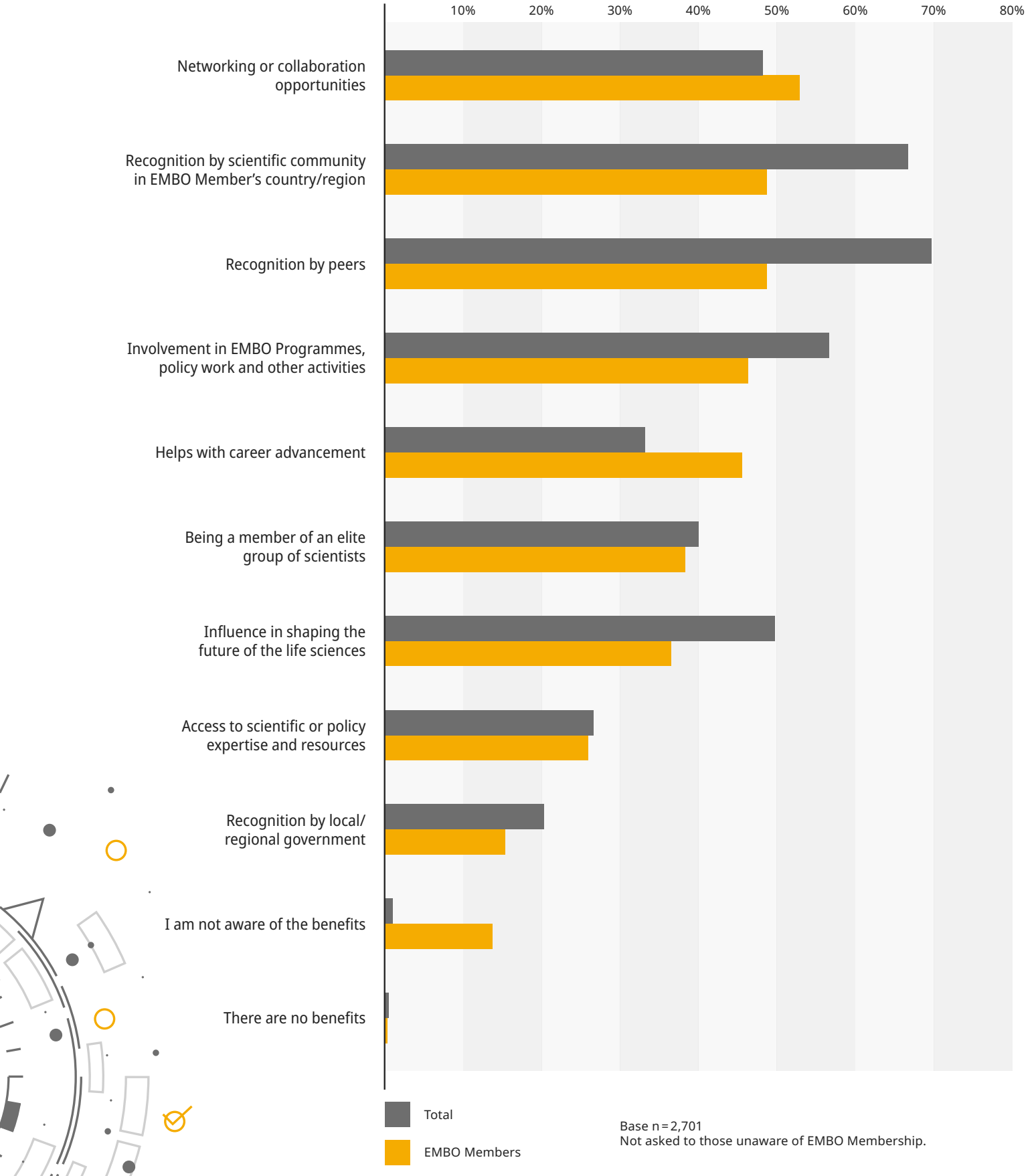
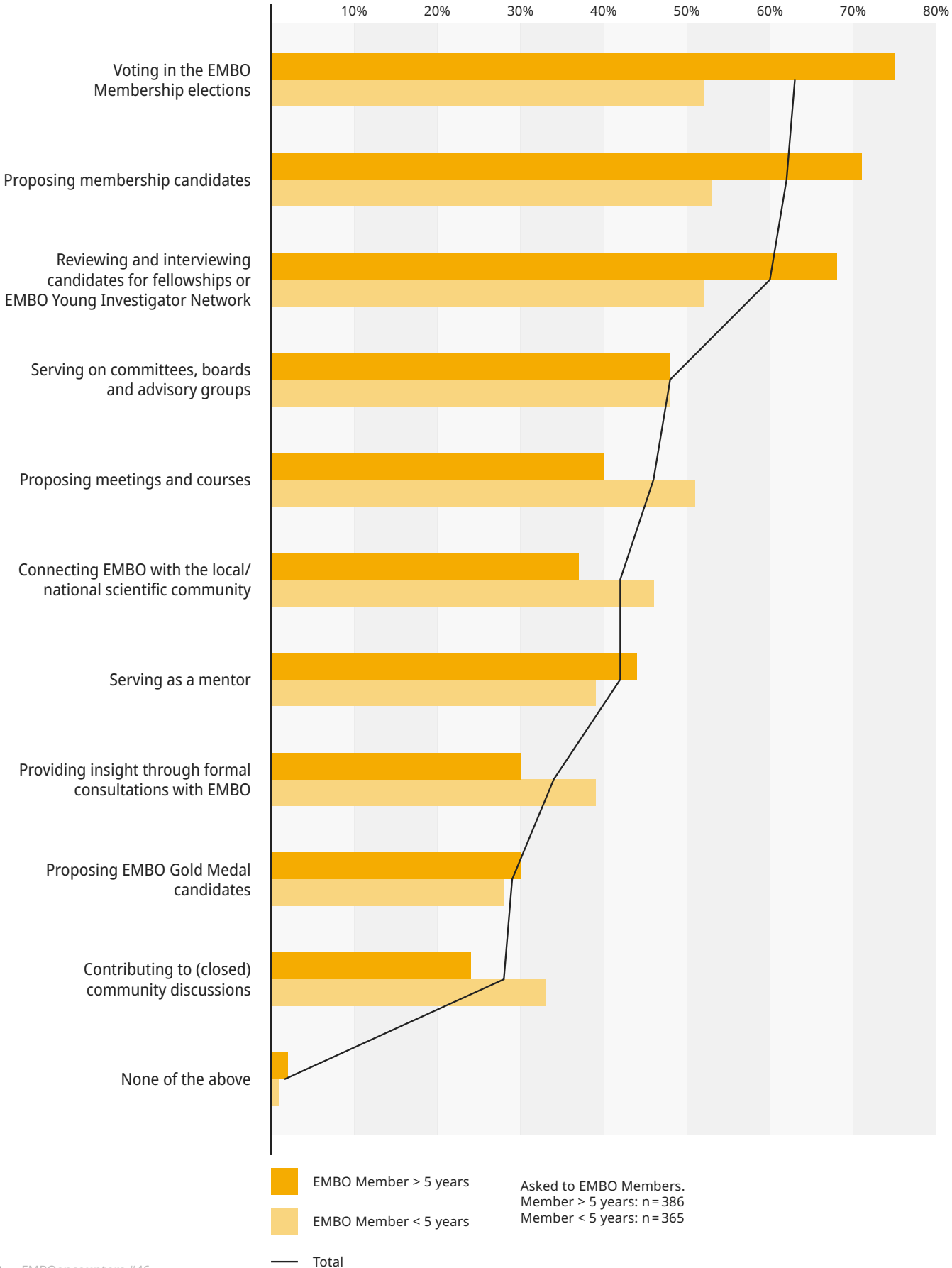


Figure 1 What do you think is the value of being an EMBO Member?



Base n = 2,701
Not asked to those unaware of EMBO Membership.

Figure 2 In your role as an EMBO Member, how do you see yourself engaging with EMBO in the future?



"The question 'Who – and what – is EMBO for?' needs to be asked and answered at regular intervals, and the answer changes as the science and the scientific environment changes."

From the book EMBO in perspective: A half-century in the life sciences by Georgina Ferry (2014)

In the survey, EMBO Members saw themselves engaging with EMBO in a variety of capacities in the future (figure 2).

They indicated enthusiasm for continuing to grow the EMBO Membership by proposing candidates and voting to elect new members, as well as serving as reviewers or interviewers for EMBO Postdoctoral Fellowship and EMBO Young Investigator applicants. The members expressed interest in serving on committees, boards and advisory groups, participating in formal consultations and community discussions, organizing meetings and courses, serving as mentors, and bringing EMBO and the broader life sciences community closer at the local and national levels.

The answers correlated with the duration of the membership. For instance, those who had been EMBO Members for less than five years were more likely to engage in conceiving meetings and courses, connecting EMBO with national or local communities of scientists, and contributing to consultations and community discussions. Those who had been members for more than five years intended to engage by voting in the membership elections, proposing new candidates, and selecting individuals for funding and support from EMBO.

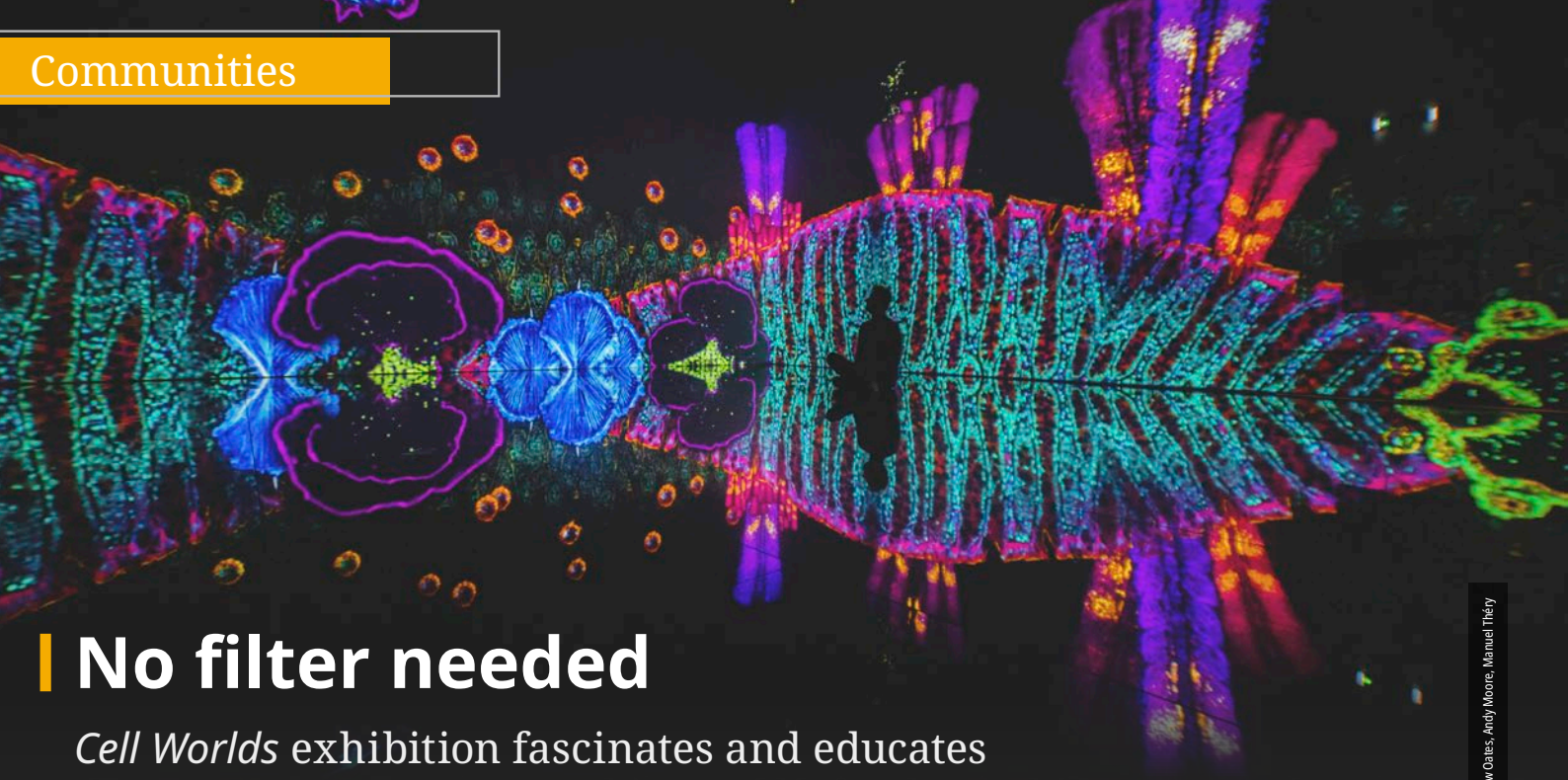
EMBO Members: a vital part of the life sciences community

Perhaps not too surprisingly, the survey confirmed that awareness and positive perceptions of the membership correlated with the extent to which EMBO has engaged with EMBO Members and *vice versa*. The connection is symbiotic: the more successful EMBO has been in supporting a researcher along their career path, the more the individual is willing to give back to the community through EMBO.

As EMBO approaches the 60th anniversary of its foundation in 1964, our vision is for a vibrant organization that is even better at delivering on its mission to foster the life sciences in Europe and beyond. Stimulating the creation and growth of scientific communities and networks and exchanging knowledge have been part of the EMBO remit since the start but will be re-enforced in the future. We hope to involve even more of our EMBO Members and are counting on their active contributions to training, policy, outreach and mentorship.

We are confident that the EMBO Membership will continue to build a vibrant and cohesive life sciences community and enhance the visibility and voice, influence and impact of EMBO.

EMBO Members, Young Investigators, Installation Grantees and Global Investigators can view more results from the EMBO survey in the community area.



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No filter needed

Cell Worlds exhibition fascinates and educates

Blurring the boundary of where art meets science, the immersive *Cell Worlds* exhibition on display at the art centre Les Bassins des Lumières in Bordeaux, France, invites visitors to journey deep into the hidden and beautiful cosmos of the human body. The exhibition, designed and created by science communicators Terence Saulnier and Renaud Pourpre, comprises detailed and mesmerizing images of human cells, showcasing the diversity and beauty of the microscopic world while inviting visitors to learn about the science behind the images.

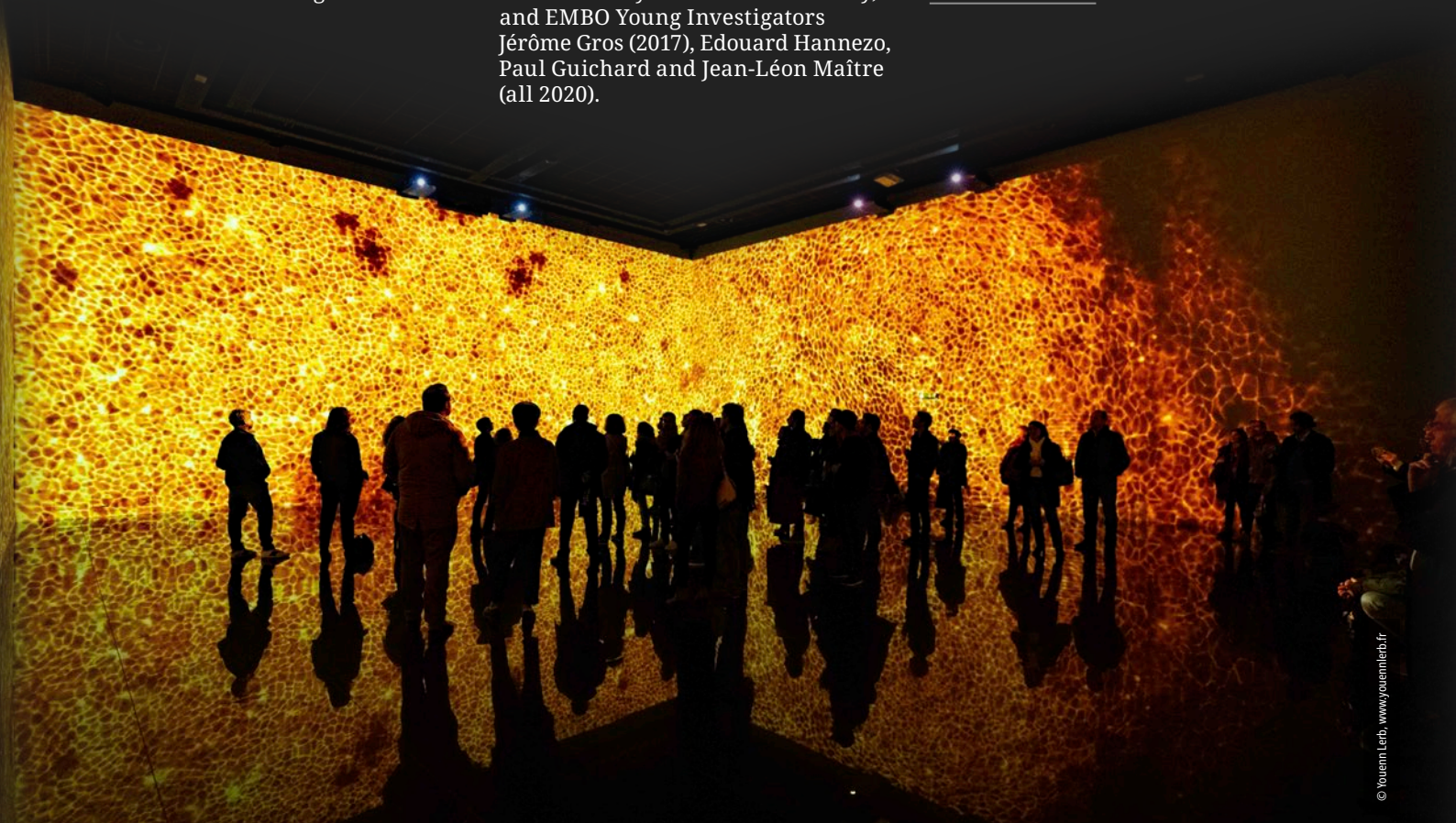
On the motivation for the project, *Cell Worlds* co-founder Terence Saulnier says: "We wanted to bring the high-quality scientific images that we know scientists have on their hard drives into a public sphere where they are usually not encountered."

Captured with a range of state-of-the-art microscopy techniques, the images were contributed by over 40 scientists from 25 teams. Contributors from the EMBO community are EMBO Members Gillian M. Griffiths, Manuel Théry and Laura Machesky, and EMBO Young Investigators Jérôme Gros (2017), Edouard Hannezo, Paul Guichard and Jean-Léon Maître (all 2020).

The *Cell Worlds* team got in touch with Laura Machesky after seeing the images her student Hoang Anh Le posted on social media. "To be able to contribute to *Cell Worlds* with our scientific images was an honour and a great experience! It made us think about our science in a different way and highlighted the benefits of sharing images with the public," Machesky says.

The exhibition is open until 2 January 2023.

cell-worlds.com



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Updates from Greece

Several new initiatives strengthen Greek bioscience

A new institute for human genome research has been established in Athens as part of the Foundation for Research and Technology – Hellas (FORTH). Research at the Greek Institute of Human Genomics (GIHG) will combine genetics and genomics with computational and clinical research, enriching and strengthening the Greek scientific environment. Furthermore, GIHG will provide services in the field of genomic medicine to improve public health.

"The creation of the new institute is a very important development in the field of biomedical sciences in Greece."

Nektarios Tavernarakis, EMBO Member and president of FORTH

The Biomedical Research Institute (BRI) in Ioannina has been re-established as an independent institute within FORTH. Originally an independent institute, the BRI was integrated into the Institute of Molecular Biology and Biotechnology at FORTH in 2012. The recent re-establishment of BRI underscores the significant research work carried out by BRI in the field of biomedical research. BRI consists of 140 members in 18 research teams. Research focuses on vascular biology, nuclear organization, stem cell biology, cancer biology, neurobiology and biomedical technology, as well as regenerative medicine and tissue engineering.

The Neurogenetics and Ageing laboratory led by Tavernarakis at the Institute of Molecular Biology and Biotechnology in Heraklion recently became a partner in the Horizon Europe collaboration *Connected Hubs in Ageing: Healthy Living to Protect Cerebrovascular Function (CHAngeing)*. Employing a multidisciplinary and cross-sector approach, and bringing together scientists from Portugal and Greece, the project aims to provide insights for the development of new effective therapies for cerebrovascular diseases (CVD). CVD represent a major public health burden, particularly in Eastern European regions.

The laboratory also participates in the newly established Marie Skłodowska-Curie Doctoral Network *Targeting Circadian Clock Dysfunction in Alzheimer's Disease (TClock4AD)*, which is expected to generate results important for the development of new effective therapies for Alzheimer's Disease. TClock4AD will empower a new generation of researchers to tackle such challenges by providing research training in neurobiology, medicinal chemistry, pharmaceutical nanotechnology, neuroimmunology, big data, bioinformatics and entrepreneurship.

Nobel Prize awarded to Svante Pääbo

The EMBO Member receives the 2022 Nobel Prize in Physiology or Medicine

The Nobel Assembly at the Karolinska Institutet awarded this year's Nobel Prize in Physiology or Medicine to Svante Pääbo of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, and the Institute of Science and Technology in Okinawa, Japan, "for his discoveries concerning the genomes of extinct hominins and human evolution."

One of Pääbo's most important scientific successes was sequencing the genome of the Neanderthal, an extinct relative of present-day humans. "I am very excited because it is a really big discovery. It is our closest extinct relative that now has been defined at the genome level, allowing us to compare changes between contemporary *Homo sapiens* and extinct hominins. I think, over the years to come, this will give huge insights into human physiology," said Nils-Göran Larsson, chair of the Nobel Committee.

Svante Pääbo was elected to the EMBO Membership in 1999. He is the 91st Nobel Laureate among the EMBO Members and Associate Members. EMBO warmly congratulates Pääbo on receiving the prize.

Pierre Gönczy with ELISIR scholars Ana Marija Jakšić, Can Aztekin, Milena Schuhmacher, Gioele La Manno and Martin Weigert (left to right), September 2022

From PhD directly to independent group leader

Opportunity for recent graduates at EPFL

The School of Life Sciences at the Swiss Federal Institute of Technology Lausanne (EPFL) started the EPFL Life Sciences Early Independent Research (ELISIR) Scholar programme five years ago. EMBO Member and former Young Investigator Pierre Gönczy, who directs the programme, initiated it with substantial contributions from EMBO Members Douglas Hanahan and Félix Naef.

The ELISIR position provides a recent PhD graduate with a track-record of excellence and creativity the opportunity to work as an independent principal investigator heading a small team to conduct innovative research in any area of life sciences. The scholarship can be held for up to five years and is an alternative to a traditional postdoctoral position, serving as an attractive springboard for scientific and career development. ELISIR scholars are embedded in the School of Life Sciences. In addition, they benefit from, and contribute to, the vibrant interdisciplinary research community at EPFL, which fosters interactions with allied disciplines, including engineering, physics, chemistry and computer sciences.

The yearly ELISIR call typically opens in early January with a deadline of 1 April. Since the creation of the ELISIR programme in 2018, five exceptional early-career scientists were selected from outstanding applications from a wide range of countries and research fields.

epfl.ch/schools/sv/school-of-life-sciences-independent-research-scholar

Focus on membrane transporters

EMBO Workshop facilitated interdisciplinary exchange

From 23-27 August, 110 scientists from across the world travelled to Crete for the EMBO Workshop *Membrane transporters as essential elements of cellular function and homeostasis*. The five-day workshop brought together researchers from a range of career stages and fields to encourage interdisciplinary exchange in order to better understand membrane transporters at all biological levels.

"Despite their biological importance, membrane transporters have not always received the attention they deserve," says main organizer and EMBO Member George Diallinas from the National and Kapodistrian University of Athens. "With this workshop we wanted to facilitate the interaction of scientists working on different aspects of transporters and within different cell systems."

The programme comprised talks covering cutting-edge research including *in vivo* transporter function and regulation, the latest high-resolution structural data, transporter evolution and methodology for studying transporter proteins. Several lively and extensive poster sessions with presentations from early-career scientists rounded it off.

The workshop took place at the Mediterranean Institute of Chania. Co-organizers were EMBO Member Frances Brodsky (University College London), EMBO Member Giulio Superti-Furga (CeMM, Research Center for Molecular Medicine of the Austrian Academy of Sciences), Bernadette Byrne (Imperial College London) and Sandra Paiva (University of Minho).

meetings.embo.org/event/21-membrane-transporters

Seeds of change

EMBO Workshop inspired new plant science initiative in the fight against global heating

A group of participants of the EMBO Workshop *Molecular responses of plants facing climate change* in Montpellier, France, on 13-17 June, decided to launch an initiative to bring experts together to explore how plant science can better contribute solutions to the global climate crisis.

EMBO Member Heribert Hirt, a professor of plant science at the Center for Desert Agriculture, King Abdullah University of Science and Technology, Saudi Arabia, has organized a kick-off meeting in Versailles, France, on 14-16 November to develop and agree a clear strategy, and plan actions and projects.

"Industrial agriculture is a major contributor to global greenhouse gas emissions such as methane and nitrous oxide, to the destruction of forests, and to the reduction in the microbial diversity and productivity of soils," Hirt says. "Researchers aim to nurture plants that are better adapted to climate change, heat stress and drought, but we also need to address the emission and production side."

Hirt hopes that the initiative will ultimately unite experts from a wide range of fields and facilitate the development of innovative solutions that can make a real impact. "When thinking about soil, plants, food and human health—everything is connected," Hirt says. "We need to really think outside the box, beginning with a small core of people, and then building that up in an inclusive and interdisciplinary way that brings together researchers, educators and policymakers."

meetings.embo.org/event/22-plants-climate-change

Good reads

A selection of publications by members of the EMBO communities

Gene architecture directs splicing outcome in separate nuclear spatial regions
Gil Ast, Maria Carmo-Fonseca and colleagues
Molecular Cell / 3 March 2022
DOI: 10.1016/j.molcel.2022.02.001

Radio Signals from Live Cells: The Coming of Age of In-Cell Solution NMR
Lucia Banci and colleagues
Chemical Reviews / 21 January 2022
DOI: 10.1021/acs.chemrev.1c00790

Priorities for ocean microbiome research
Chris Bowler and colleagues
Nature Microbiology / 30 June 2022
DOI: 10.1038/s41564-022-01145-5

BacPROTACs mediate targeted protein degradation in bacteria
Tim Clausen and colleagues
Cell / 3 June 2022
DOI: 10.1016/j.cell.2022.05.009

Insulin signaling in the long-lived reproductive caste of ants
Claude Desplan and colleagues
Science / 1 September 2022
DOI: 10.1126/science.abm8767

Golgi-Bypass Is a Major Unconventional Route for Translocation to the Plasma Membrane of Non-Apical Membrane Cargoes in Aspergillus nidulans
George Diallinas and colleagues
Front Cell Dev Biol / 7 April 2022
DOI: 10.3389/fcell.2022.852028

Transmembrane helices 5 and 12 control transport dynamics, substrate affinity, and specificity in the elevator-type UapA transporter
George Diallinas and colleagues
Genetics / 30 August 2022
DOI: 10.1093/genetics/iyac107

N6-methyladenosine in poly(A) tails stabilize VSG transcripts
Luísa M. Figueiredo and colleagues
Nature / 30 March 2022
DOI: 10.1038/s41586-022-04544-0

Post-gastrulation synthetic embryos generated ex utero from mouse naive ESCs
Jacob H. Hanna and colleagues
Cell / 1 September 2022
DOI: 10.1016/j.cell.2022.07.028

Behavioural immune landscapes of inflammation
Andrés Hidalgo and colleagues
Nature / 5 January 2022
DOI: 10.1038/s41586-021-04263-y

Discovery of archaeal fusexins homologous to eukaryotic HAP2/GCS1 gamete fusion proteins
Luca Jovine and colleagues
Nature Communications / 6 July 2022
DOI: 10.1038/s41467-022-31564-1

Structure of the decoy module of human glycoprotein 2 and uromodulin and its interaction with bacterial adhesin FimH
Luca Jovine, Bin Wu and colleagues
Nature Structural and Molecular Biology / 10 March 2022
DOI: 10.1038/s41594-022-00729-3

Hypoxia-mediated stabilization of HIF1A in prostatic intraepithelial neoplasia promotes cell plasticity and malignant progression
Daniel Metzger and colleagues
Science Advances / 22 July 2022
DOI: 10.1126/sciadv.abo2295

Single-cell analyses of axolotl telencephalon organization, neurogenesis, and regeneration
Elly M. Tanaka, Barbara Treutlein, Gray Camp and colleagues
Science / 2 September 2022
DOI: 10.1126/science.abp9262

Mitochondrial protein import determines lifespan through metabolic reprogramming and de novo serine biosynthesis
Nektarios Tavernarakis and colleagues
Nature Communications / 3 February 2022
DOI: 10.1038/s41467-022-28272-1

Length-dependent poleward flux of sister kinetochore fibers promotes chromosome alignment
Iva M. Tolić and colleagues
Cell Reports / 2 August 2022
DOI: 10.1016/j.celrep.2022.111169

Nuclear chromosome locations dictate segregation error frequencies
Iva M. Tolić and colleagues
Nature / 13 July 2022
DOI: 10.1038/s41586-022-04938-0

A clinically compatible drug-screening platform based on organotypic cultures identifies vulnerabilities to prevent and treat brain metastasis
Manuel Valiente and colleagues
EMBO Molecular Medicine / 17 February 2022
DOI: 10.15252/emmm.202114552

Lysosomal enzyme trafficking factor LYSET enables nutritional usage of extracellular proteins
Johannes Zuber and colleagues
Science / 8 September 2022
DOI: 10.1126/science.abn5637

Books

A selection of new books by members of the EMBO communities

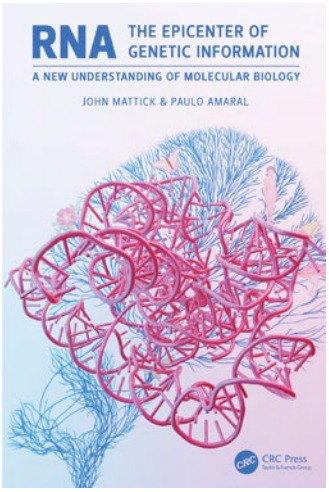
John Mattick and Paulo Amaral

RNA, the Epicenter of Genetic Information

CRC Press, 2022
ISBN 9780367567781

EMBO Associate Member John Mattick and Paulo Amaral document the many advances as well as prejudices and founder fallacies of the early days of molecular biology in their book, which is Open Access and freely available for download.

DOI: 10.1201/9781003109242

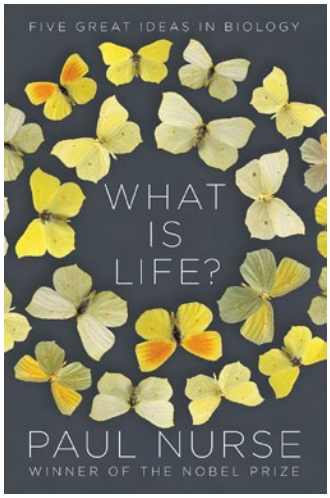


Paul Nurse

What Is Life? Five Great Ideas in Biology

W. W. Norton & Company, 2021
ISBN 9780393541151

EMBO Member and Secretary General Paul Nurse takes up the challenge of describing what it means to be alive and illuminates five great ideas that underpin biology—the cell, the gene, evolution by natural selection, life as chemistry and life as information.

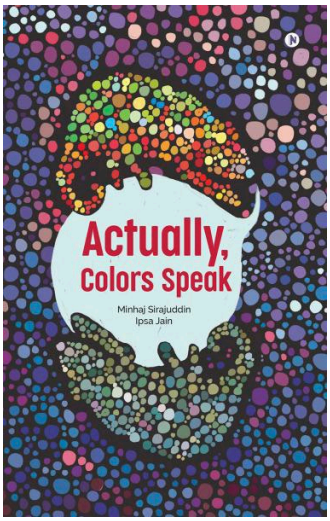


Minhaj Sirajuddin and Ipsa Jain

Actually, Colors Speak

Notion Press, 2022
ISBN 9798885304832

In their fully illustrated science book for everyone of twelve years and older, EMBO Young Investigator Minhaj Sirajuddin and Ipsa Jain explain the science behind color changes in animals through a conversation between three lab instruments.

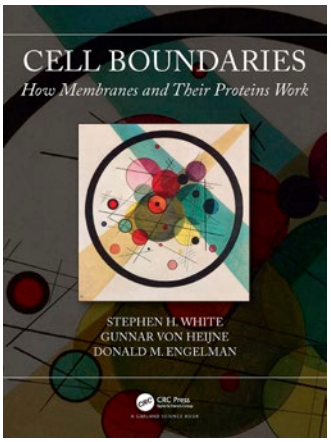


Stephen H. White, Gunnar von Heijne and Donald M. Engelman

Cell Boundaries: How Membranes and Their Proteins Work

Garland Science, 2021
ISBN 9780815342168

The textbook for advanced undergraduate and beginning graduate students by EMBO Member Gunnar von Heijne and his co-authors covers structural and organizational principles underlying cell membranes and how these principles enable function.



Awards

A selection of prizes awarded to members of the EMBO communities


Silvia Arber, Ole Kiehn

The Brain Prize 2022
Lundbeck Foundation

They receive the prize jointly with Martyn Goulding for their pioneering work on how the nervous system controls movement. The prize recognizes highly original and influential advances in brain research and is worth 1.3 million euros.

Frances Ashcroft

Banting Medal for Scientific Achievement 2022
American Diabetes Association

She receives the medal for helping define the field of "channelopathies", and impacting the understanding and treatment of neonatal diabetes. The medal is awarded annually for achievements in diabetes research and associated with an honorarium of 20,000 US dollars.

Lucia Banci

Luigi Tartufari International Prize for Physics/Chemistry 2022
Academia Nazionale dei Lincei

She receives the prize for her contributions to developing a molecular understanding of fundamental phenomena related to cellular processes. The prize, worth 25,000 euros, is awarded to Italian and foreign scholars in four fields.

Ewan Birney

Honorary Doctorate in Bioinformatics
University of Tartu

The doctorate honours his excellent research, advocating open science and long-term collaboration with Estonia, including supporting scientists at the University of Tartu.

Stefanie Dimmeler

Otto Warburg Medal 2022
German Society for Biochemistry and Molecular Biology

She is recognized for her pioneering work on cardiovascular disease. The medal is a highly prestigious award for biochemists and molecular biologists in Germany and comes with an award of 25,000 euros.

Eileen Furlong

Gottfried Wilhelm Leibniz Prize 2022
German Research Foundation

The prize recognizes her work on dissecting gene regulation. It is highly prestigious and provides the recipient with research funding of up to 2.5 million euros.

Edith Heard

Richard Benz Medal
City of Heidelberg

She receives the medal for her outstanding services to science in general, and the science location Heidelberg in particular. The medal is one of the highest honours of the city and is awarded to personalities in the fields of art, culture and science.

Matthias Hentze

Centenary Award 2023
Biochemical Society

He is recognized for his contributions to understanding the interplay between RNA-binding proteins and RNA. The annual award, accompanied by 3,000 British pounds, recognizes the research impact and commitment to build, support and nurture scientific talent.

Andrés Hidalgo

18th Health Sciences Award
Caja Rural Granada Foundation

He receives the award for the study *Behavioural immune landscapes of inflammation* (DOI: 10.1038/s41586-021-04263-y). The award recognizes the best article on life sciences published in Spain.

Meritxell Huch

Hilde Mangold Award 2022
German Stem Cell Network

The award recognizes her research on liver organoids in animal and human tissue models. It is awarded annually to an outstanding female stem cell researcher who is a role model for young female scientists.

Anthony Hyman

Breakthrough Prize in Life Sciences 2023
Founded by Sergey Brin, Priscilla Chan and Mark Zuckerberg, Yuri and Julia Milner and Anne Wojcicki

He is awarded the prize for the discovery of biomolecular condensates leading to fundamental advances in our understanding of cellular organization. It recognizes the world's top scientists in the fields of life sciences and is worth three million US dollars.

Clare Isacke, Pascal Meier

Team Science Award 2022
American Association for Cancer Research

They receive the award along with ten other clinical and non-clinical scientists for their collaborative work that has transformed treatments for many patients with breast cancer. The award was established to acknowledge and catalyze interdisciplinary teams.

Stephen Jackson

Johann Anton Merck Award 2022
Merck Healthcare

He is recognized for the translation of fundamental biological research towards new medicines. The annual award, worth 30,000 euros, highlights outstanding scientific preclinical research accomplishments.

Carsten Janke

Grand prix Charles-Léopold Mayer 2021
French Academy of Sciences

The prize recognizes his research on the modulation of the microtubule cytoskeleton by post-translational modifications. It is awarded annually to a researcher who has performed outstanding work in the biological sciences, especially in cell or molecular biology.

Peter Jonas

Peter Seeburg Integrative Neuroscience Prize
Society for Neuroscience

He receives the prize for his outstanding work on ion channels, synapses and neuronal networks. The prize, endowed with 100,000 US dollars, recognizes outstanding advances in the understanding of executive brain functions and cognitive processes.

Anna Obenauf

Martin and Rose Wachtel Cancer Research Award
American Association for the Advancement of Science & Science Translational Medicine

She receives the award for her ground-breaking research on metastases and drug resistance in cancer. It honours early-career cancer researchers for their outstanding work.

Erkki Ruoslahti

Albert Lasker Basic Medical Research Award 2022
Lasker Foundation

He receives the award jointly with Richard Hynes and Timothy Springer for discoveries concerning integrins. It highlights a fundamental finding that opens up a new area of biomedical science.

Uğur Şahin, Özlem Türeci

Jeantet-Collen Prize for Translational Medicine 2022
Louis-Jeantet Foundation

They receive the prize jointly with Katalin Karikó for the development of mRNA vaccines that protect against SARS-CoV-2. The prize, endowed with 500,000 Swiss francs, is awarded to experienced researchers who have distinguished themselves in biomedical research with a strong clinical application.

Novo Nordisk Prize 2022
The Novo Nordisk Foundation

Together with Katalin Karikó and Drew Weissman they are awarded the prize for their pioneering scientific discoveries that have led to the first COVID mRNA vaccine. The prize, worth five million Danish krones, honours active scientists who have provided outstanding contributions to advance medical science for the benefit of people's lives.

Petra Schwille

Otto Warburg Medal 2021
German Society for Biochemistry and Molecular Biology

She is recognized for her outstanding work in cellular and molecular biophysics. The medal is a highly prestigious award for biochemists and molecular biologists in Germany and comes with an award of 25,000 euros.

Janet Thornton

The FEBS Journal Open Science Award
Federation of European Biochemical Societies

The inaugural recipient is honoured for her major role in developing ELIXIR, the pan-European infrastructure for biological data, as well as creating freely available computational tools and knowledge resources. The award, accompanied by 2,000 euros, recognizes exceptional contributions to Open Science.

Xiaowei Zhuang

Heinrich Wieland Prize
Boehringer Ingelheim Foundation

She is recognized for her seminal discoveries in cell and neurobiology using the new single-molecule imaging technologies she developed. The prize, worth 100,000 euros, honours outstanding research on biologically active molecules and systems, as well as their clinical importance.

Season's Greetings

Wishing you and your loved ones a joyful and relaxing festive season and health, happiness and peace throughout the coming year!

Thank you from all of us at EMBO for your varied contributions, from serving on council, committees and advisory editorial boards, or reviewing funding applications and manuscripts, to engaging in discussions on specific topics, or adding offers of assistance to the Ukraine solidarity list.

We look forward to working with you again in 2023.

EMBO

Events

Practical Courses

IN-Pune | 4–16 December 2022 | G. Pananghat
Cryo electron microscopy and 3D image processing (CEM3DIP)

CL-Valparaiso | 4–16 January 2023 | R. Mayor
Developmental biology

DE-Heidelberg | 12–17 February 2023 | M. Schorb
In-situ CLEM at room temperature and in cryo

DE-Heidelberg | 5–10 March 2023 | M.D. Vivanco
Techniques for mammary gland research

DE-Heidelberg | 12–17 March 2023 | A. Hendrix
Extracellular vesicles: From biology to biomedical applications

DE-Heidelberg | 26 March–1 April 2023 | J. Medenbach
Measuring translational dynamics by ribosome profiling

DE-Heidelberg | 17–24 April 2023 | J.E. González-Pastor
Microbial metagenomics: A 360° approach

GR-Heraklion | 7–18 May 2023 | A. Stamatakis
Computational molecular evolution

Workshops

TW-Taipei | 2–6 December 2022 | C.T. Chien
Neural development and neurodegeneration

IL-Ein Gedi | 11–15 December 2022 | A. Zaritsky
Bacterial cell biophysics: DNA replication, growth, division, size and shape

IL-Rehovot | 8–12 January 2023 | M. Sharon
The 20S proteasome degradation pathway

AT-Goldegg am See | 10–15 January 2023 | M. Zerial
From molecules to organisms: An integrative view of cell biology

IN-Goa | 6–10 February 2023 | A. Badrinarayanan
Bacterial morphogenesis, survival and virulence: Dynamic genomes & envelopes

Hybrid | DE-Heidelberg | 8–11 February 2023 | J. Mahamid
In-situ structural biology: From cryo-EM to multiscale modelling

IL-Kibbuz Nahsholim | 11–14 March 2023 | M. Oren-Suissa
Mechanisms of neuronal remodelling

CL-Santa Cruz | 26–30 March 2023 | C. Leterrier
Emerging concepts of the neuronal cytoskeleton

DE-Seeon | 23–27 April 2023 | M. Conrad
Ferroptosis: When metabolism meets cell death

Hybrid | ES-Sant Feliu de Guíxols | 24–27 April 2023 | E. Martí
Hedgehog signalling: From molecular structure to developmental biology and diseases

PL-Poznan | 16–19 May 2023 | B. Uszczynska-Ratajczak
Non-coding RNA medicine

ES-Sant Feliu de Guíxols | 21–25 May 2023 | M. Loose
Cell polarity and membrane dynamics

HR-Srebreno | 21–26 May 2023 | E. Weber-Ban
Protein quality control: From molecular mechanisms to therapeutic intervention

HR-Cavtat | 24–27 May 2023 | O. Rissland
RNA meets protein decay

GR-Alexandroupoli | 25–29 May 2023 | F.G. Grosveld
Systems biology: Linking chromatin and epigenetics to disease and development

India | EMBO Lecture Courses

IN-Berhampur | 12–16 December 2022 | S. Mukherjee
Structure, dynamics and interactions in biomolecular systems using NMR spectroscopy

IN-Gandhinagar | 12–17 December 2022 | N. Thirugnanasambandam
Noninvasive brain stimulation: Advances in research and clinical practice

IN-Bangalore | 6–9 February 2023 | S. Tole
Modeling development and disease with human tissue organoids

EMBO | EMBL Symposia

Hybrid | DE-Heidelberg | 8–11 March 2023 | T. Kiers, J. McCutcheon, T. Richards
The cellular mechanics of symbiosis

Hybrid | DE-Heidelberg | 25–28 April 2023 | R. Bonasio, M. Boulard, M. Götz, K. Noh
Brain genome: Regulation, evolution, and function

Hybrid | DE-Heidelberg | 9–12 May 2023 | D. Arendt, E. Heard, M. Leptin, F. Watt, D. Weigel
The organism and its environment

Upcoming deadlines

Gold Medal
1 February

Solidarity Grants
15 February

Courses and Workshops
1 March

Young Investigator Programme
1 April

Installation Grants
15 April

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