

EMBL Training Review Summary and Response

The review of the European Molecular Biology Laboratory's Training programme took place in Heidelberg and virtually on 16th to 18th March 2022. The review panel consisted of 13 international experts, including three members of EMBL's Scientific Advisory Committee (SAC). The chair was Brenda Andrews, University of Toronto, Canada. Several observers were present, including Eiríkur Steingrímsson, Chair of EMBL Council, Edith Heard, EMBL Director General, Ewan Birney, EMBL Deputy Director General, Paul Flicek, Associate Director of EMBL-EBI Services, Jo McEntyre, Associate Director of EMBL-EBI Services. The review took place in a hybrid format.

Evaluation Summary

The reviewers remarked on the exceptional overall performance of EMBL Training based on the quality of its training activities and services, its work in developing young training specialists, and its contribution to integrated activities in the European Life Sciences. The international standing and impact of EMBL Training, alongside its development of new innovative approaches, form a strong and unique programme that was highly appreciated by the panel. Although EMBL's advanced training programmes have been running since its inception, this is the first external review of the EICAT. EMBL-EBI training activities have been previously reviewed as part of EMBL-EBI services. The review focused on the time period 2018-2022 and there were 4 Training Programmes under review: Internal Scientific Training, External Scientific Training, and the European Learning Laboratory for the Life Sciences (ELLS), which fall within EMBL's International Centre for Advanced Training (EICAT), and EMBL-EBI Training, which does not sit directly within EICAT and instead reports to EMBL-EBI leadership. Notably, since the beginning of the pandemic, there has been enhanced communication between EICAT and EMBL-EBI Training, centred around the delivery of virtual content.

The panel commended Anne Ephrussi for demonstrating an exceptional level of engagement and good citizenship in taking over the considerable responsibilities associated with the directorship of EICAT. The Unit is now poised for a very significant change as Anne Ephrussi is due to retire in 2023. Reviewers remarked that the upcoming changes brought on by Anne's retirement present both a challenge and an opportunity for EMBL Training. It was further noted that Anne's leadership has been essential for the success of EICAT, and that developing a succession plan is now urgent. However, reviewers also indicated that identifying a direct replacement for Anne Ephrussi may be challenging given the highly demanding nature of the role. Should a direct replacement not emerge, the panel highlighted the option of splitting the position, appointing both a scientist as Director of Training, and an Executive Director of Training responsible for logistics and finance.

The reviewers commented that EMBL's internal training programmes have continued to be highly successful, in continuity with EMBL's strong tradition as an institution that puts training of young people among its highest priorities. The panel observed that the international PhD programme, which has been the model for many other such programmes around Europe and is considered to be world class, continues to be attractive and oversubscribed. It was noted that EMBL awards

degrees jointly with universities in its member states, and that a switch to EMBL acting as the sole awarding body for PhDs would streamline the administrative burden.

The reviewers also praised the EMBL Fellow's Career Service as an inspiring programme that will no doubt serve as a role model for other institutions. To further develop this type of support, the review panel proposed that a mentor or a mentoring committee could be established for each postdoc involving group leaders other than the supervisor and members of the postdoc's unit. It was further suggested that it may be advantageous to make more use of EMBL alumni to provide external mentors or career advice, particularly for postdocs and students considering careers unfamiliar to group leaders.

The review panel discussed further highlights for EMBL Training during the review period, including the 4th round of co-funding for the EIPOD postdoctoral programme, which has been leveraged to deliver resources to all EMBL trainees, and the career development activities and complementary skills courses for postdoctoral fellows, which are exemplary. Lastly, reviewers highlighted recent work by the Careers Advisory team in collaboration with members of the Genome Biology unit describing the training outcomes for more than 2200 EMBL trainees.

The panel observed that mention of how new group leaders are supported and developed was notably absent from the training portfolio. The panel stressed that developing formal training and more informal support structures (such as mentoring, coaching, networks) for new group leaders should not be overlooked and it may be useful to develop a 'network' of mentors for junior group leaders including external experts.

The reviewers also praised the external training programme, which has continued to thrive and enhance its reputation, and has reinforced the role of EMBL as the prime European venue for scientific conferences, courses, and symposia. The panel further recognized that EMBL-EBI Training is a world class educational unit that enables a broad spectrum of researchers across Europe and the world to use bioinformatics resources effectively. The reviewers noted that EMBL-EBI Training addresses a critical gap in available bioinformatics training, and serves an indispensable role in the bioinformatics ecosystem.

However, reviewers indicated that dependence on external funding is an ongoing challenge. While success in obtaining funding testifies to the strength of EMBL Training, it can also result in uncertainty and undercut strategic decisions. The panel therefore highlighted that a mechanism to ensure that temporary gaps in funding do not damage essential training activities is important.

The review panel indicated that both the internal and external programs at EMBL Training have done an outstanding job of rising to the challenges and pressure of the pandemic. This positions EMBL to rethink and innovate: for instance, while in-person courses and conferences are likely to remain, it should be possible to use virtual tools to improve both. The panel also commended EMBL-EBI Training on their amazing ability to adapt to the pandemic by quickly pivoting to virtual courses.

Over the next few years, EMBL is going to adapt its training activities to the increased focus on interdisciplinary research in its new scientific Programme. The panel recommended that an advisory group composed of scientists with experience and interest in interdisciplinary training

should be established and that new ties be made to university units with which EMBL has not traditionally interacted (e.g., physics, mathematics, ecology, engineering, computer science) to catalyse trainee recruitment and build momentum in research areas associated with the new Programme.

Lastly, reviewers remarked that the ELLS programme plays a critical role in building a culture of public engagement at EMBL, and that it supports multiple avenues for scientists to share their enthusiasm for and knowledge of science. The panel encouraged EMBL to continue to build a culture of public engagement and to explore the possibility of including training in public engagement as a required part of EMBL's graduate student and postdoctoral training programs. Reviewers recognized that the vision and strategy of the new Public Engagement and Science Education programme is currently under development.

Overall, the review panel found that EMBL Training has performed outstanding work that will permit its continued success during the upcoming period of transition.

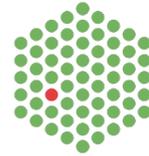
Response to the Panel's recommendations

I would like to thank all review panel members, and particularly the Chair, Brenda Andrews, for their time, effort, and valuable feedback on EMBL Training. This was the first review for EMBL Training, and it came at an extremely important moment for its future directions and change in leadership. The panel's input was extremely useful for planning the future of both internal and external training, and will help us shape the overall scope and organisation of EMBL Training moving forward.

I would like to congratulate everybody within EMBL Training on an outstanding review: it is wonderful to read such a positive report. I also join the panel in commending all EMBL Training staff for their exceptional efforts in rising up to the challenges and pressure of the current pandemic, and for their willingness to adapt and innovate under difficult and constantly changing circumstances.

I also extend my most sincere congratulations and thanks to Anne Ephrussi for her exceptional and unwavering leadership as Director of EICAT over the past 17 years. Under her leadership, EMBL has continuously raised the international standing of the training it provides through its internal and external training programmes. EMBL is very proud of what Anne and her team have achieved in creating such a vibrant, innovative and nurturing environment. With Anne's retirement approaching, I agree with the panel about the urgency of developing a robust succession plan as soon as possible. I also agree that this will be challenging given the extremely demanding nature of Anne's role, and the breadth of responsibilities involved. I would like to thank the panel for their suggestions about how we should approach this challenge.

The panel's extremely positive comments and suggestions regarding EMBL's internal and external training programmes, and EMBL-EBI Training were greatly appreciated. I am also grateful for the panel's suggestions regarding the possibility of EMBL acting as the sole awarding body for PhDs, which we will continue to consider carefully, taking into account the specificities of our six sites. I



am also very pleased to read the reviewers' praise of the EMBL Fellow's Career Service and its work, and I take on board their suggestion of optimising the EMBL alumni network to provide mentorship and careers guidance for EMBL trainees.

I would also like to thank the panel for their suggestion of developing formal training and informal support structures for new group leaders at EMBL. While EMBL does have mentorship guidelines and resources available to new group and team leaders, via Human Resources, I recognise that there is room for improvement and the panel's direct input and suggestions were very welcome. We will ensure that these considerations are taken on board as we develop a modern, streamlined framework for new group leader training and mentorship.

I am grateful for the discussion about reducing reliance on external funding sources. We are conscious of the potential risks associated with relying on external funding and we are monitoring this area very carefully. Some extra funds for training and public engagement are included in the current Indicative Scheme, and we will assess the degree of external funding reliance on EMBL Training once we have evaluated the financial impact of the 2022 hybrid conference programme.

I am also excited about the plans for Training at EMBL to embrace the new scientific themes of global importance that are key to the "Molecules to Ecosystems" Programme, and we will continue to share best practice in scientific training through an emphasis on interdisciplinary training and joint supervision, and by reinforcing collaboration and engagement with our Member States.

Finally, I am happy to read the reviewers' comments regarding the work of the European Learning Laboratory for the Life Sciences (ELLS). I further agree with the panel's comments regarding the importance of examining the role of ELLS in the context of the wider Public Engagement programme, and I am excited to continue to work together to build a culture of public engagement.

In conclusion, I would like to congratulate all the EMBL Training teams very warmly, and Anne in particular, once again, for a very successful review and for their exceptional work and dedication, particularly in the last couple of years during the pandemic. This review has highlighted the remarkable work going on within EMBL Training, as well as the many opportunities ahead, through rich discussions. My thanks to Brenda Andrews and all of the review panel for the constructive discussions and their very valuable input. The advice from this review will be critically important for the future evolution of EMBL Training.

Professor Edith Heard, FRS
Director General
11 May 2022