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EMBL-EBI Research Review
Summary and Response

The review of the European Molecular Biology Laboratory's European Bioinformatics Institute (EMBL-EBI) Research Unit took place on 25th–27th March 2025 in a hybrid format, with the large majority of participants present in person in the recently opened Thornton building, at EMBL-EBI, Hinxton, United Kingdom. The review panel consisted of 16 international experts, including five members of EMBL's Scientific Advisory Committee (SAC). The review was chaired by Caroline Relton from the London School of Hygiene & Tropical Medicine and University of Bristol. Additionally, several external and internal observers were present: Chair of EMBL Council Peter Becker (virtual attendance), Vice Chair of EMBL Council Amanda Collis (virtual attendance), EMBL Director General, Edith Heard, and Peer Bork, Director of EMBL Heidelberg and incoming interim EMBL Director General.

Evaluation Summary

The EMBL-EBI Research Unit comprises six research groups (Birney, Cortes-Ciriano, Goldman, Lees, Petsalaki, and Saez-Rodriguez) and three service-oriented teams with a 20% research component (Bateman, Finn, and Keane).

With the recent appointment of Julio Saez-Rodriguez as Head of Research, succeeding Ewan Birney, the Unit is preparing to expand its research portfolio. Two new Group Leaders, Tim Coorens and Jessica Ewald, will join in 2025, bringing expertise in computational toxicology and somatic evolution in cancer. Julio has also outlined plans to recruit three additional Group Leaders aligned with the new EMBL Programme, prioritising scientific excellence. The Review Panel recommended that the Unit consider the overall balance of its research portfolio and whether to focus efforts on areas of urgent need where EMBL-EBI's technical strengths provide a clear competitive advantage. EMBL-EBI is uniquely positioned among academic institutions to lead technically demanding, high-impact research initiatives.

The Panel noted the consistently high quality and breadth of research across all groups. Variations in output were understood to reflect, in part, differences in group size and the proportion of time each group dedicates to research alongside service provision. Nonetheless, the ability for Service Team Leaders to allocate 20% of their time to research continues to be a successful model, with particularly impressive output from these joint groups. Presentations from the Bateman, Finn, and Keane groups clearly demonstrated the value of a close integration between research and service. Research in these groups not only generates novel data, but also

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produces methods and tools to assess data quality, which are then applied to improve the data resources managed within the service division.

The Panel noted the productivity and scientific excellence of the EMBL-EBI Research Unit. With over 500 publications, numerous open-access datasets and software tools, and strong integration across EMBL sites and Member States, the Unit made a significant contribution to European life science research.

The Panel recognised several scientific achievements that reflect the strength and breadth of research at EMBL-EBI. These included the development of pandemic-scale data management and analysis methods, notably through the Iqbal and Goldman Groups; the establishment of a robust sample and data framework by the Cortes-Ciriano Group to support clinical and translational research; and the creation of widely adopted machine learning tools such as MAPLE. Together, these accomplishments demonstrate EMBL-EBI's ability to deliver high-impact, community-driven research.

EMBL-EBI's central role in developing and embedding an EMBL-wide AI strategy was a key point of recognition. The Panel commended EMBL-EBI for its proactive approach to embracing the rapid advances in AI in recent years, and for the agility with which it has synthesised these developments into a coherent, forward-looking EMBL-EBI strategy. A notable example of EMBL-EBI's application of AI is the DELPHI model, developed by the Birney Group, which uses health records to predict future health outcomes and mortality risk.

The newly established collaboration with ELLIS is expected to further strengthen the programme by attracting top-tier data science talent and supporting EMBL-EBI's AI ambitions.

Furthermore, the Panel acknowledged advances in the genomic analysis of microbial communities, particularly through the work of the Finn and Lees Groups. The successful establishment of the Lees Group was also welcomed, with the Panel noting his full integration into the EMBL community and recognising how well-supported he has been.

The PhD and postdoctoral training environment at EMBL-EBI remains strong, with reasonable publication outcomes. The Panel encouraged the Unit to define shared expectations across faculty and trainees, and to broaden performance indicators to include software, datasets, and other research outputs beyond traditional publications.

The Panel noted that EMBL-EBI's predoctoral and postdoctoral fellows reported a positive training environment and strong scientific support. At the same time, discussions highlighted areas where further attention may be warranted to enhance the overall early-career researcher experience, including aspects of financial support, administrative processes, and policy clarity.

Finally, the Review Panel noted that this is the final review conducted under the leadership of Edith Heard, prior to her stepping down as Director General of EMBL. Her support and guidance

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during this and previous reviews have been deeply appreciated by all, as has her visionary leadership in shaping the Molecules to Ecosystems Scientific Programme.

Response to the Panel's Recommendations

We extend our sincere thanks to the Panel for their time and effort in reviewing the EMBL-EBI Research Unit. We are especially grateful to the Chair, Caroline Relton, and to all panel members for their thoughtful and constructive evaluation. Our thanks also go to Julio Saez-Rodriguez, Head of Research, for his tremendous leadership and dedication in the short time since his appointment. We are confident that under Julio's guidance and vision, EMBL-EBI Research will continue to thrive. We also wish to thank all EMBL-EBI Research Group and Team Leaders, as well as everyone who contributed to the preparation of this review. We are truly appreciative of the Panel's exceptionally positive report.

We can only agree with the Panel's recommendation to continue leveraging the close connections between research and service at EMBL-EBI. Indeed, this interface remains a defining strength of EMBL-EBI Research, enabling innovation and rapid translation of research outputs into widely used resources. We will ensure that this interface remains a consideration in future hiring and team structures and will explore ways to further institutionalise this model, including clearer pathways for transitioning promising research outputs into sustained service offerings.

We acknowledge the importance of articulating a clear scientific vision to guide future recruitment. While scientific excellence remains our primary criterion, we agree that more explicit consideration of research themes, methodological diversity, and complementarity across groups could enhance the strategic development of the Unit. Under Julio's leadership, a recruitment strategy aligned with the next EMBL Programme is already in development and will guide forthcoming appointments.

We thank the Panel for their endorsement of our leadership in developing and embedding an EMBL-wide AI strategy. We acknowledge the Panel's call for clarity around our distinct contribution – particularly in applied AI rather than foundational computer science – and agree that strategic collaborations, especially with local AI hubs such as University of Cambridge partners, will be key. We will work to refine the narrative around EMBL-EBI's unique position in life science AI and ensure ongoing evaluation and evolution of the strategy.

We appreciate the Panel's suggestion to develop more formalised pathways for knowledge exchange from research outputs to service teams. We will explore the feasibility of establishing processes and dedicated roles (e.g. software engineers) to support this transition and ensure the sustainability of impactful methods and datasets. Additionally, we recognise the opportunity

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to expand translation and commercialisation activities and will assess current capacities and potential partnerships in this space.

The Panel's remarks on legacy management are also well taken. We recognise the importance of ensuring continuity when longstanding staff transition to new roles or retire. This includes maintaining software sustainability, preserving key institutional knowledge, and ensuring ongoing support in mentoring roles. We appreciate the suggestion to appoint Nick Goldman to an Emeritus position – an approach we have successfully used in the past – if he so wishes, as it would represent a valuable step toward retaining expertise and institutional memory within the Unit.

We welcome the Panel's suggestion to consider whether the unique context and skills mix of EMBL-EBI Research – particularly their proximity to Service teams – could support the articulation of a major shared project or 'moonshot'. We agree that a unifying goal or vision could foster greater synergy across groups and enhance interactions with services. We will explore this possibility through internal discussions and assess how such an initiative could further strengthen EMBL-EBI's collaborative culture and scientific impact.

Finally, we thank the Panel for engaging with EMBL-EBI's predoctoral and postdoctoral fellows and noting their positive views on the scientific environment, supervision, and training. Fellows also raised concerns around co-supervision, postdoctoral contracts, onboarding, and fellowship conditions – particularly stipend adequacy and parental leave. These points are being considered in internal planning and will inform EMBL-wide policy discussions. Administrative challenges, including Graduate Office responsiveness, have also been noted and are being followed up. We remain committed to strengthening EMBL-EBI's training environment.

In conclusion, we take great pride in the scientific achievements of EMBL-EBI Research and the supportive, collaborative environment it has fostered. We extend our sincere congratulations to Julio Saez-Rodriguez, Ewan Birney and all EMBL-EBI Research staff for their exemplary contributions to a highly productive and collegial Unit throughout the review period. The outlook for the future is exceptionally promising.

Prof. Dr. Peer Bork
Interim Director General

Prof. Edith Heard, FRS
Former Director General

(Director General at the time of the Review)

6 May 2025

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