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EMBL's Reflection on the Future European Framework Programme for Research and Innovation

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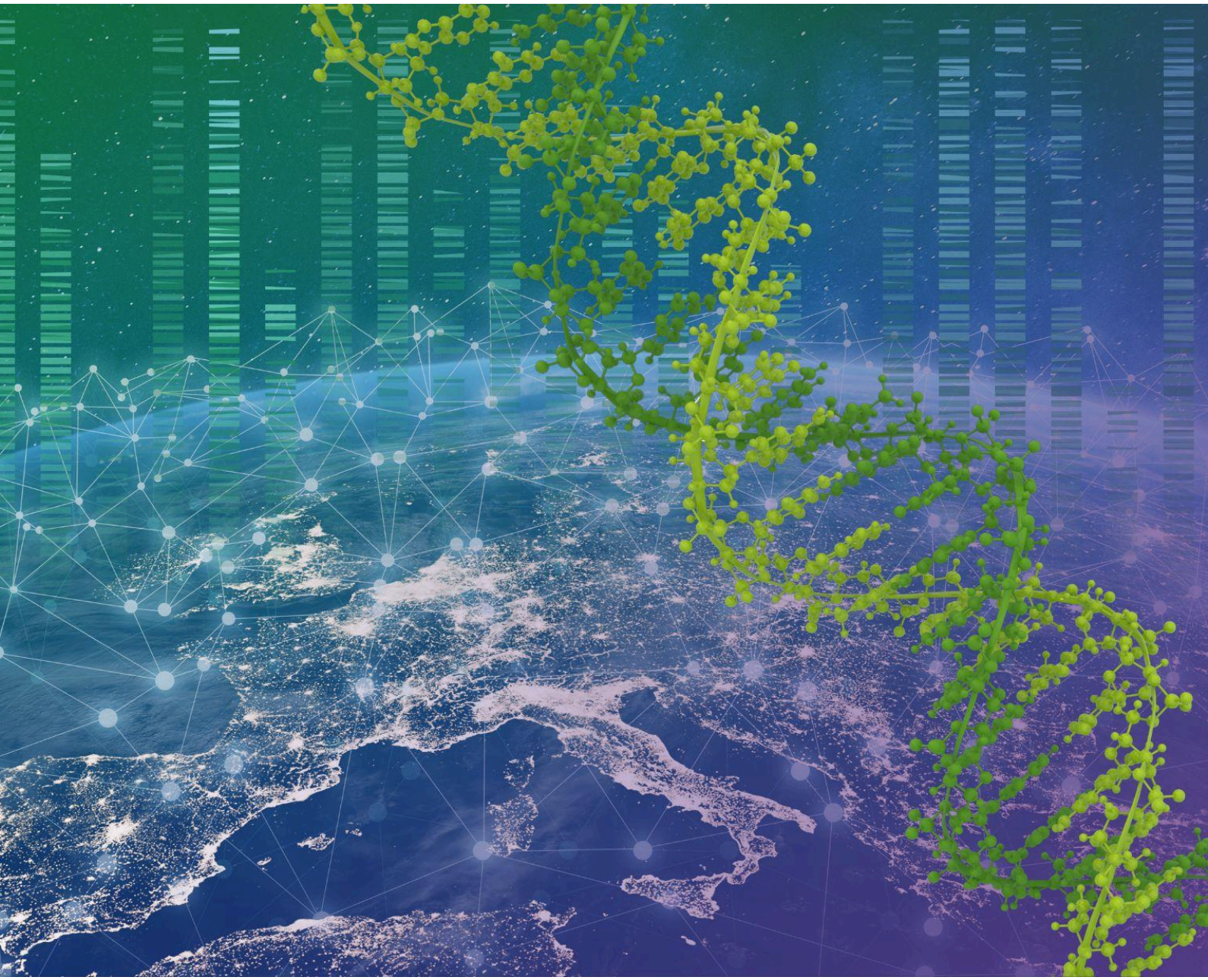

The European Molecular Biology Laboratory (EMBL) is one of the world's leading research institutions, and Europe's flagship laboratory for the life sciences, founded in 1974.
With 29 member states, the EMBL is an inter-governmental organisation with more than 110 independent research groups and service teams covering the spectrum of molecular biology across six sites in Germany, France, Spain, the United Kingdom and Italy.
EMBL is driving visionary fundamental research, offers vital services to scientists globally, trains Europe's future scientific talent while actively engaging in technology transfer and industry relations, and nurturing policy dialogue in Europe and worldwide. EMBL has been a historical participant in European research framework programmes.

This paper outlines EMBL's views on the importance of science and how it could be best supported in the context of FP10.

1. Fostering scientific excellence and interdisciplinary research, as guiding principles

Complex issues such as climate change, public health, and food security are interconnected and require collaborative efforts across research disciplines. In the life sciences, fields of environment, agriculture, medicine have, at the core, the same challenge of understanding how life works. Interdisciplinary research allows scientists to draw on diverse perspectives, methodologies, and data sources to tackle these complex problems effectively. By breaking down traditional silos and fostering collaboration between disciplines through bottom-up calls, interdisciplinary research has the potential to drive innovation and address global environmental challenges in a more holistic and impactful manner. **EMBL recommends that science is viewed as an essential asset in Europe's strive to boost its global competitiveness. As such, collaborative fundamental research and scientific excellence should receive sustained funding throughout FP10.**

2. Capitalising on Research Infrastructures

Research Infrastructures (RIs) serve as hubs of scientific expertise, driving discoveries and innovation through the development of advanced instruments and cutting-edge technologies, often in close collaboration with industry. RIs have become vibrant ecosystems where research, data, talent, technology development and innovation co-exist forming a highly complementary cycle. Sustaining transnational access (TNA) to these uniquely European research and innovation ecosystems under FP10 will ensure that any researcher across Europe can leverage the facilities and expertise to accelerate scientific progress. **Europe should further capitalise on existing RIs' technical**

expertise, talent pool and abundant computable data to strengthen its digital, green and Artificial Intelligence (AI) leadership. Europe's research benefiting from world class AI under FP10 depends on access to infrastructures capable of generating data at-scale and availability of substantial datasets. If not addressed, the lack of sustainable support for open data resources hosted by European infrastructures, in this case the EMBL-EBI as an important example, could be a true roadblock for the uptake of world-class data and AI methods.

3. Supporting the full breadth of research career development

FP10 should support the full breadth and diversity of research careers that make Europe's cutting-edge science possible, from early career researchers to established scientists and including research managers and research-enabling roles. **AI uptake, more specifically, will require tailor-made interdisciplinary training programmes that support upskilling and mobility at all levels, while ensuring that research environments are future-proof and can retain talent.** A stronger emphasis should also be placed on closing the cycle of training and public engagement, so researchers are equipped with the necessary skills to conduct high-quality research and prepared to effectively communicate their findings, thereby fostering greater public trust and understanding of the scientific method and endeavours.

4. Driving the translation of science forward through competence building and more innovative funding schemes

"Translation enablers", such as research organisations' technology transfer units or research infrastructures, that help research teams seamlessly integrate research and innovation are crucial for keeping European research competitive. FP10 should continue to incentivise researchers to pursue innovative ideas beyond the initial research phase by normalising funding models, such as the European Research Council's Proof of Concept, which have already demonstrated success. **Flexible and innovative funding mechanisms, such as top-up funding to support new company creation after project end, and ambitious proof-of-concept funds that embrace failure should be explored.** Additionally, FP10 should champion exploratory, small scale research and innovation partnerships between academic groups and industry. Offering support for co-funded projects and joint research infrastructure provision, including for pre-competitive research, will help sustain cross-sectoral collaborations and strengthen Europe's public-private ecosystems.

5. Integrating European research and uniting European Science

Responding to mounting global challenges - from climate change to emerging pathogens and uptake of AI – will require an empowered and united European science. To achieve this, FP10 needs to invest further into increasing connectivity, bridging disciplinary and national borders, and levelling the playing field in the European Research Area. The concept and principles underpinning the **Widening actions remain pivotal for such investments, and should continue to be an integral part of the EU's research and innovation strategy.** They should also be well connected and co-supported by other EU funding sources, such as regional cohesion instruments, to reach their full potential for delivery and sustainability.

International collaboration remains essential for European research, as it enriches it and amplifies its impact and influence. Science is a well-placed field to promote a dialogue between nations based on shared principles, values and trust. Ultimately, these are the conditions needed for the development of holistic solutions for the global challenges we face.

FP10 should enable the pursuit of conscientious international cooperation, leaning on the good practices developed by European RIs and following decades of experience in enabling open science, science diplomacy and cross-border knowledge sharing.

EMBL stands for 50 years of excellent, groundbreaking and inclusive science. We firmly believe that European research, delivered through its talent, collaborative approach and infrastructures, is at the heart of Europe's progress, both societal and economic. **Science drives disruptive innovation, which increases Europe's attractiveness, competitiveness and well-being.**

To endure and prosper, it requires sustained investment commensurate with the challenges it is asked to address, and unwavering political prioritisation. As wide-ranging funding decisions for the next multiannual financial framework are being made, **science and innovation should be considered a high priority for Europe's competitive advantage today and tomorrow.**

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