

## **European Molecular Biology Laboratory's position paper on the interim evaluation of Horizon 2020**

### **I. Introduction – role of EMBL in life science research in Europe**

The European Molecular Biology Laboratory (EMBL) is Europe's flagship intergovernmental research organisation for the life sciences, and one of the highest ranked scientific research organisations in the world. We perform basic research in life sciences, train researchers, provide services to scientific communities, engage in technology transfer and in the integration of life science activities in Europe and beyond.

Due to the excellent research performed by EMBL scientists, EMBL has been very successful in obtaining competitive funding from current and previous EU Framework Programmes for Research and Innovation, with a total amount of 18.7 million Euro in 2015 that underlines the position of EMBL at the cutting edge of life science research in Europe and beyond. In addition, EMBL and the European Commission (EC) exchange information and cooperate on a number of topical policy issues of mutual interest. This cooperation has been formalised in a Memorandum of Understanding<sup>1</sup>.

As the primary European infrastructure for the life sciences and a founding member of EIROforum, EMBL wishes to use this opportunity to contribute to the Horizon 2020 Interim Evaluation and help improve the functioning of Horizon 2020. This position paper addresses only those parts of the H2020 that are of particular interest to EMBL.

### **II. Excellent science**

#### **The European Research Council (ERC)**

EMBL played a crucial role in establishing the ERC and in our view the ERC remains the most important and influential funding body promoting basic research in Europe. As such, the ERC is a key player in shaping the future of European science, especially in areas that are at the frontier of research.

EMBL is very pleased that the ERC's funding was substantially increased in the current programme. We also view very positively the establishment of the Consolidator Grants. The ERC is, and should remain, a cornerstone of the next Research and Innovation programme. EMBL hopes that the ERC's focus on frontier research and investigator-led programmes will be maintained.

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<sup>1</sup> The Memorandum of Understanding, reinforcing the aims of the 1995 Administrative Agreement between the EC and EMBL to consolidate and further develop the European Research Area, was signed in 2011.

## **The Marie Skłodowska-Curie Actions**

Transnational mobility remains one of the pillars of the European Research Area, and the Marie Skłodowska-Curie Actions (MSCA) on skills, training and career development have proven to be highly valuable programmes for European research as well as for innovation and education. EMBL views as desirable the H2020 target to raise the number of cross-sector and cross-country circulations from 50 000 researchers to 65 000 by 2020.

EMBL has obtained substantial funding from MSCA and generally views the funding instruments as well suited. Some changes could, however, be made in order to further improve the instruments. For example, the COFUND scheme could be optimised by securing financing for postdoctoral fellows for five rather than three years, to support sustainable career development. The current length of the scheme often does not allow the completion of projects, which sometimes forces young researchers to quickly identify new sources of funding for the final years of the project, thus moving into a career path that may not have been their first choice, as well leading to end results and publications being credited to the final funding institution. Throughout the MSCA, EMBL would encourage more provisions for flexibility in exchanges in training and industry placements.

## **European Research Infrastructures (including e-infrastructures)**

EMBL provides access to world-class research infrastructures (RIs) in the areas of structural biology and bioinformatics to its 22 member states and beyond. Such infrastructures are amongst the main facilitators of cutting-edge research and thereby enable the delivery of the 'Open Innovation, Open Science and Open to the World' agenda.

However, EMBL recommends that the funding for access to world-class RIs is increased in order to deliver tangible results under the Horizon 2020 key performance indicator to provide access to an additional 20 000 researchers. EMBL notes that, unfortunately, under H2020 the support for instruments providing for access, such as I3 grants, has decreased. In EMBL's view, this should be addressed accordingly in the remaining H2020 implementation period.

The EU-added value benefits are clear: in re-boosting I3 funding, the European Research Area as a whole gains in efficiency and output, while increased accessibility ensures that the most promising scientific projects secure access to the RIs in order to carry out ground-breaking research. In particular, EMBL is concerned about diminishing funding for accessing structural biology facilities.

## **E-infrastructures**

Operating one of the world's largest open biological data repositories, EMBL remains at the forefront for providing large-scale bioinformatics services to worldwide communities in research, industry and healthcare. In this context, we welcome the Commission's initiative to give a major boost to Open Science in Europe through introducing the concept of the European Open Science Cloud (EOSC). While the initial pilot funding is welcome and represents a good first step, the EC and the research community need to work together to develop a sustainable long-term concept for the science cloud.

Engagement in cloud computing will enable Europe to maintain a competitive advantage in carrying out big data analysis. This goal can be attained through means such as funding outstanding examples in the scientific community, by stimulating the use of the EOSC through a voucher scheme, by exploring hybrid models involving private cloud resources and public e-infrastructures, as well as taking measures to integrate innovation from European commercial cloud providers rather than global ones.

EMBL is supportive of the pilot's goal to integrate national and European resources, and would like to suggest to the Commission to enact robust legislation enabling smooth dataflow within the EU, coupled with a governance model formed around end-users and procurers.

In making the EOSC a reality, there is also a critical need to facilitate the creation of a necessary skills base through investments in the training of specialists in cloud software engineering and operation.

### **III. Societal challenges**

#### **Health, demographic change and wellbeing**

The aim of addressing the societal challenges of health, demographic change and wellbeing is laudable. In life science research, we are entering a new and exciting chapter of Digital Biology that will have a far-reaching impact on medicine, industry and society<sup>2</sup>. Usage of computational technologies that integrate data across scales of biological organisation will ultimately lead to new ways to understand, model and predict human health and intervention in disease.

The following areas represent emerging and important research themes at the European level, with the ageing population being a major crosscutting theme:

- A coherent and ambitious European microbiome programme.
- A European equivalent to the 4D Nucleome project funded by the National Institutes of Health (NIH), an area in which many European researchers have made important progress but where a coherent European research programme is missing.
- Standardised big data processing and integrated analysis, which can provide us with the opportunity to change the standard of care, for example, of many cancer types of the adult population.
- Enhancing the interoperability of biological and medical data resources and software tools.
- Developing highly multiplexed imaging for biomarkers, crucial for a better understanding of disease mechanisms and the development of novel therapies.

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<sup>2</sup> For more, please see the EMBL Programme 2017–2021 'Digital Biology'  
[www.embl.org/programme](http://www.embl.org/programme)

H2020 support provided to collaborative projects has so far made major contributions to cutting-edge research and the structuring of scientific communities in Europe. The forthcoming Work Programmes 2018–2020 are an opportunity to reinstate European leadership in the aforementioned areas.

With a view to the next Framework Programme (2021 onwards), EMBL advocates that strong support for basic research in the area of health is maintained, as basic research proves to be the gateway for long-term breakthroughs in applied health research.

### **International cooperation**

EMBL views positively the opening up of the H2020 programme to researchers from outside of Europe and calls for additional measures enhancing scientific cooperation, networking and partnership building between Europe and the rest of the world.

## **IV. Spreading excellence and widening participation**

Differences in EU member states' participation in Horizon 2020 remain – in particular, with regard to the participation of the EU-13 – possibly due to past and present variations in national investment in research and innovation. In an attempt to help build capacity of EU members states in the life sciences, EMBL has consistently reached out to many EU countries that have been eligible for funding under the H2020 Widespread calls.

EMBL believes it is important to address the innovation and research divide in the European Union and that the Twinning and Teaming initiatives, coupled with Structural Funds, are the right tools to address this. In view thereof, EMBL invites the Commission to reconsider new phase one calls in the Teaming Flagship Instrument in the Work Programme for 2018–2020.

## **V. Forthcoming instruments – The European Innovation Council**

EMBL welcomed Commissioner Moedas' initiative for a European Innovation Council (EIC). However, considering that the EIC pilot will be placed under the SME instrument, its relevance to research actors and innovators that are not SMEs, such as universities and research organisations, is unfortunately very limited. To counter this, it would be preferable to have an instrument whereby publicly funded research organisations can submit call applications. EMBL also recommends that the EIC would support training in technology transfer and strengthening of the capabilities technology transfer offices across member states.

## **VI. Concluding statement**

EMBL continues to be staunch supporter of, and an active participant in, Horizon 2020. EMBL calls on European policy makers to continue to support the Framework Programme, which is one of the key cornerstones of the European research and innovation landscape.

This paper presents a consensus of the views of EMBL and its facilities. Please direct further questions and comments to:

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