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BUENAS PRÁCTICAS
Operaciones Cofinanciadas

**“Adaptation of Services, Spaces
and Facilities for the EMBL
Outstation” at the Centre for
Genomic Regulation**

**Programa Operativo
de Cataluña**

Fondo Europeo de Desarrollo Regional

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Submitted as Good Practice: the project “Adaptation of Services, Spaces and Facilities for the EMBL Outstation” at the Centre for Genomic Regulation.



The European Molecular Biology Laboratory (EMBL) is an intergovernmental organisation specialising in life sciences research. It is publicly funded by 21 Member States of the European Union and has sites in four European countries (Germany, Italy, France and the United Kingdom). Over the past few years, it has expanded to include a new site at the Barcelona Biomedical Research Park through a new partnership with the Centre for Genomic Regulation (CRG, as abbreviated in Catalan) over the 2015/2020 period. As a result of the partnership agreement, the CRG offers scientific and technological services to the new Outstation’s members. It also provides other general services.

To meet these objectives and to facilitate the installation of the EMBL Outstation within the Park, the CRG has had to adapt the services, seminar spaces, meeting rooms, cell culture rooms and facilities, and in particular, to create a new tissue engineering technological platform. The adaptation, assignment and restructuring of the spaces within the CRG, and the new facilities due to the growth of the CRG and to collaboration with the new Outstation (with nearly 100 researchers), allow us to accommodate to the needs of 400 researchers. For the new platform, spaces have been converted, the first pieces of equipment have been acquired for its operationalisation, and qualified technical staff have been recruited to ensure that it functions properly.

The eligible cost for public funding was €1,321,430, €660,715 of which was awarded by the European Regional Development Fund (ERDF). The creation of a new tissue engineering technological platform allowed two new researchers to be recruited to work in the facilities funded by the project.

This operation is presented as Good Practice because it meets the following criteria:

1. High level of dissemination among beneficiaries, potential beneficiaries and the general public

In compliance with the regulatory obligations concerning communication, the action has been properly disseminated via several websites, as well as through posters and labels on all the pieces of equipment and in the spaces and rooms co-funded by the ERDF. Supplementary actions have also been carried out.

- The home page of the CRG's website <https://www.crg.eu/> contains a link in a prominent position (click on the European Union flag below the main banner) to a specific page where projects co-funded by the ERDF and the European Social Fund (ESF) are shown: <https://www.crg.eu/erdf-funds>.



Clicking on the European Union logo referring to the ERDF opens a page containing details of all ERDF co-funded projects, including, in Catalan, the *Adequació de serveis, espais i instal·lacions per a la EMBL outstation* (Adaptation of Services, Spaces and Facilities for the EMBL Outstation).



The action is described on the Tissue Engineering Unit's web page (<https://www.crg.eu/taxonomy/term/2784>), which includes the corresponding logos and acknowledgements.

CRG
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Tissue Engineering Unit

Head of unit
Laura Batlle Morera

Overview

The goal for the Tissue Engineering Platform is to provide the CRG, PRBB and external researchers with the latests technologies used in the fields of stem cell biology, stem cell differentiation, organoid formation and induced pluripotent stem cells (iPSCs). The Unit is constantly setting up new technologies that are emerging in the above fields.

The Tissue Engineering platform works in collaboration with the Biomolecular Screening & Protein Technologies Unit at the CRG to provide CRISPR/Cas9 genome editing technology service.

Laura Batlle Morera CV

Since September 2015: Head of the Tissue Engineering Facility, CRG, Barcelona, Spain.
 2012-2015: Stem cells, Embryology, in vivo procedures and Micromanipulation Officer, Gene Regulation, Stem Cells and Cancer Programme, CRG, Barcelona, Spain.
 2010-2012: Stem Cells and Induced Pluripotent Stem Cells Unit, Mouse Embryo Micromanipulation Manager, CMRB, Barcelona, Spain.
 2008-2010: Senior Technician, CMRB, Barcelona, Spain.
 2004-2008: PhD in Stem Cell Biology, University Of Edinburgh, Edinburgh, UK
 2004: Research Assistant at Stem Cell Sciences (UK) Ltd., Edinburgh, UK.
 2003: Research Associate at The Wellcome Trust Center for Cell Biology, University of Edinburgh, Edinburgh, UK.
 1999-2003: Bachelors Degree in Biochemistry, Universitat de Barcelona, Barcelona, Spain.

Funding Acknowledgements

The new Tissue Engineering technological platform offers its services to both CRG and EMBL Barcelona site members. With this purpose, premises have been refurbished and first equipment has been installed, thanks to the co-funding from the European Regional Development Funds (DP 2014-2020 in Catalonia (reference IU16-005537). Suitable technical staff has also been hired to run the facility.

- Provisional and definitive signage has been put up in the new spaces that, thanks to ERDF funding, have been equipped to accommodate the EMBL Outstation.

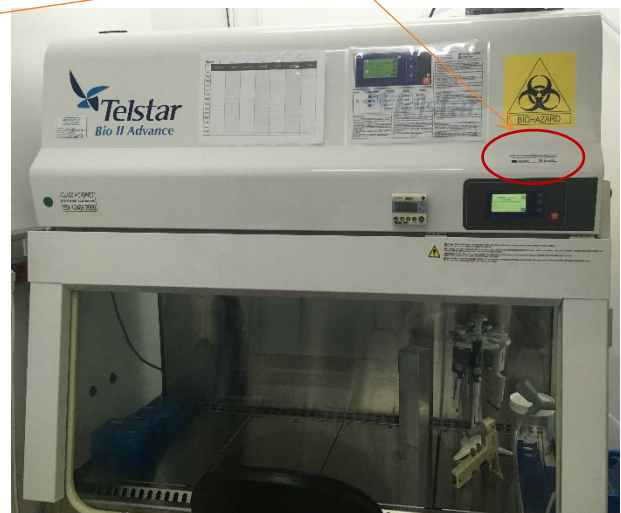
Examples of definitive signage in the new spaces that have been equipped thanks to ERDF funding



Examples of provisional signage at ERDF co-funded spaces where works are ongoing



- All the equipment acquired with ERDF funding has been duly identified with the following label:



- In addition, the Tissue Engineering Unit organised one course in 2017 and another in 2018. The logos acknowledging the Unit's ERDF funding appear on the web page for each of the two courses (2017: <https://www.crg.eu/ca/node/17168> | 2018: <https://www.crg.eu/ca/node/18303>) and on the dissemination posters.

2. Inclusion of innovative elements

Scientists at the EMBL Outstation in Barcelona explore how, in good health and in illness, tissues and organs function and develop. The operationalisation of the Tissue Engineering Unit enables it to offer services that employ very innovative technologies in the field of stem cells and embryonic development. Technologies like these require an infrastructure of cell culture laboratories that meet special conditions, i.e. having a clean room (low contamination levels) and a unit fitted out with innovative specific equipment.

3. Linkage between results obtained from the operation and the objectives established

The CRG has adapted the services, seminar spaces, meeting rooms, cell culture rooms and facilities to enable the installation of the EMBL Outstation within the Barcelona Biomedical Research Park.

Furthermore, and in particular, it has created a new platform: the Tissue Engineering Unit. The aim of doing so is to obtain in vitro cell aggregates similar to tissues obtained in vivo for both basic research and potential cell therapy purposes, thus strengthening the partnership between the two entities.

4. Contribution to resolving a regional problem or weakness

In the past 12 years, three new technologies have had a major impact on the experimental strategies employed in biomedical research. The discovery of induced pluripotent stem cells (iPSCs) – cells that have the potential to generate every cell in an organism – has many applications in biomedicine, at both basic research level and potential regenerative therapy level. The technology for editing genes very precisely in organisms (CRISPR/Cas9) enables a wide variety of applications to be generated in both basic research and biotechnological product development. Finally, the potential for the in vitro generation of miniature, simplified versions of an organ (organoid structures) from stem cells is fundamental to basic research.

The Tissue Engineering Unit offers all these innovative services, which, until now, had not been available anywhere within the region. Its creation has enabled research groups at the CRG and the EMBL to apply these new techniques to their research and to perform new applications and tests that were impossible just a few years ago. It has had a direct impact on the centres' research projects. The Unit's impact on the region's scientific community will be very beneficial in the short and medium terms.

5. High degree of coverage of the target population

The agreement between the EMBL and the CRG to create a mixed unit focusing on advances in our understanding of complex biological systems enables the EMBL's experience in the area of computational biology to be combined with the CRG's knowledge in specific areas of genomics and the large-scale study of proteins. Many health problems such as cancer, immune system disorders and birth defects require the study of tissue biology to be pursued further. The CRG's existing infrastructures and the new Tissue Engineering Unit will benefit scientists worldwide, enabling access to microscopy and modelling technologies specifically designed for the purpose

of studying tissues, thereby contributing to a better understanding of certain key aspects of human health.

6. Compliance with horizontal principles (sustainable development, equality between men and women, and the principle of non-discrimination) and environmental legislation

Over the years, the CRG has developed an environmental sustainability policy based on the proper management of waste by sorting and subsequently processing it in accordance with the 3Rs principle (Reduce, Reuse, Recycle). This forms part of a broader policy to minimise emissions. Moreover, regarding the energy management of the different buildings and infrastructures, the CRG monitors the reading of meters, is concerned with equipment scheduling management, performs energy audits and implements savings measures. Included in the works projects and equipment procurement are sustainability criteria to minimise the energy consumption of the new spaces or others that may arise, and communication campaigns are carried out across the organisation to inform on personal consumption indicators.

Finally, besides promoting gender equality, the CRG applies a policy of non-discrimination on grounds of race, religion, national origin, age or disability to job applicants or employees of the CRG. Regarding disability inclusion measures, the CRG complies with legislation on the social inclusion of disabled persons.

7. Synergies with other policies or instruments of public intervention

The action is fully in line with the Research and Innovation Strategy for the Smart Specialisation of Catalonia (RIS3CAT) because it considerably strengthens the health and life sciences industries sector.

Created thanks to the implementation of the action, the Tissue Engineering Unit has enabled the CRG to take part in the work groups of the European alliance *Core for Life*, where knowledge and good practices relating to the technologies offered by the scientific and technical services of European centres of excellence is shared.

The Unit is currently leading the creation of a European network covering scientific and technical services that focus on the three innovative technologies (stem cells, gene editing and organoids) mentioned in previous points. The platform has helped to position the CRG as a centre of expertise in these technologies, bringing knowledge to several European countries and to the international community, and promoting the use of these new techniques.

A final point that should be noted is the synergy of the operation with the ERDF co-funded action of adapting and fitting out the research spaces in the building of the Barcelona Biomedical Research Park for the installation of the EMBL Outstation, and the enlargement of the Department of Experimental and Health Sciences of Pompeu Fabra University. The two operations have facilitated the installation of new spaces for the EMBL in Barcelona.

