LBMC - Laboratoire de biologie moléculaire de la cellule

Rapport Hcéres

HCERES

High Council for the Evaluation of Research and Higher Education

Research units

HCERES report on research unit:

The Laboratory of Molecular Biology of the cell

LBMC

Under the supervision of the following institutions and research bodies:

École normale supérieure de Lyon - ENS Lyon

Centre National de la Recherche Scientifique – CNRS

Université de Lyon

Université Claude Bernard Lyon 1 - UCB

Institut National de la Santé et de la Recherche Médicale - INSERM

Evaluation Campaign 2014-2015 (Group A)

HCERES

High Council for the Evaluation of Research and Higher Education

Research units

In the name of HCERES,[1]

Didier HOUSSIN, president

In the name of the experts committee,[2]

Heinrich LEONHARDT, chairman of the committee

Under the decree N°.2014-1365 dated 14 november 2014,

[1] The president of HCERES "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5)

[2] The evaluation reports "are signed by the chairman of the expert committee". (Article 11, paragraph 2)

Evaluation report

This report is the result of the evaluation by the experts committee, the composition of which is specified below.

The assessments contained herein are the expression of an independent and collegial deliberation of the committee.

Unit name:	The Laboratory of Molecular Biology of the cell
Unit acronym:	LBMC
Label requested:	UMR
Present no.:	5239
Name of Director (2014-2015):	Mr Laurent SCHAEFFER
Name of Project Leader (2016-2020):	Mr Pierre JALINOT

Expert committee members

Chair:

Mr Heinrich LEONHARDT, Ludwig-Maximilians University (LMU), Munich, Germany

Experts:

Ms Cristina CARDOSO, Technische Universität Darmstadt, Germany

Ms Claire FRANCASTEL, CNRS, University Paris 7 (representative of the CSS INSERM)

Mr Vincent GALY, Institut de biologie Paris-Seine, Paris

Ms Ines HELLMANN, Ludwig-Maximilians University Munich, Germany

Mr Bernard MIGNOTTE, Laboratoire de Génétique et Biologie Cellulaire

Université de Versailles (representative of the CNU)

Mr Cosmin SAVEANU, Institut Pasteur, Paris

Mr Pascal THEROND, Institut de Biologie Valrose, Centre de Biochimie, Université de Nice Sophia Antipolis (representative of the CoNRS)

Ms Julie THOMPSON, Laboratoire des sciences de l'ingénieur, de l'informatique et de l'imagerie, Faculté de Médecine Strasbourg

Mr Albrecht VON BRUNN, Max von Pettenkofer Institute, Germany

Scientific delegate representing the HCERES:

Ms Maryam MEHRPOUR

Representatives of the unit's supervising institutions and bodies:

Ms Bénédicte DURAND (representative of the Doctoral School n° 340)

Ms Germain GILLET, University of Lyon 1

Mr Laurent KODJABACHIAN, CNRS

Mr Jean François PINTON, ENS

Ms Pascaline TOUTOIS, CNRS, Rhône Auvergne

1 • Introduction

History and geographical location of the unit

The Laboratory of Molecular Biology of the cell (LBMC) is part of the Charles Mérieux Gerland site of the new University campus of Lyon located on a main road linking the Pasteur bridge to the south of the Lyon metropolitan area.

The Gerland site includes the École Normale Supérieure de Lyon (ENS), University Claude Bernard Lyon 1 (UCBL) and public research laboratories. These are multi trustee laboratories including the LBMC, IGFL (Institute of Functional Genomics), IBCP (Institute of Biology and Protein Chemistry), RDP (Laboratory of Plant Reproduction and Development), CIRI (International Center for Infectiology Research) for Biology. The Gerland site also comprises labs or departments in Maths, Physics, Chemistry, the complex systems institute as well as the humanities/social studies campus (Descartes).

The LBMC was founded in 1987 at the opening of the ENS de Lyon with the aim to cover most of life science disciplines in order to have within this institution the competences necessary for its two core missions: research and teaching. Since its creation, the LBMC has been administered as a "Unité Mixte de Recherche"(UMR), supported by the ENS de Lyon and the CNRS. The UCBL and the Lyon Hospices (HCL) also supported the laboratory, in particular through the presence of two joint-appointments within the LBMC and several transversal projects.

Management team

Mr Laurent SCHAEFFER heads LBMC since 2008 and Mr Pierre JALINOT acts as deputy director in charge of the preparation of the future contract since 2014. In 2016-2020, Mr Pierre JALINOT will lead LBMC supported by the deputy director Mr Didier AUBOEUF.

HCERES nomenclature

Principal: SVE1_LS3

Secondary: SVE2_LS8, SVE1_LS1

Unit workforce

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
N1: Permanent professors and similar positions	29	5
N2: Permanent researchers from Institutions and similar positions	30	22
N3: Other permanent staff (without research duties)	30	22
N4: Other professors (Emeritus Professor, on-contract Professor, etc.)		
N5: Other researchers (Emeritus Research Director, Postdoctoral students, visitors, etc.)	41	22
N6: Other contractual staff (without research duties)	8	2
TOTAL N1 to N6	**138**	**73**

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
Doctoral students	28	
Theses defended	47	
Postdoctoral students having spent at least 12 months in the unit	47	
Number of Research Supervisor Qualifications (HDR) taken	11	
Qualified research supervisors (with an HDR) or similar positions	29	23

2 • Overall assessment of the unit

Global assessment of the unit

The LBMC investigates basic questions of molecular cell biology. The thirteen research teams of the LBMC work along three main research axes: i) genome dynamics, maintenance and expression (team 2, 3, 4, 6, 8, 9, 10, 12) ii) cellular and molecular pathological processes (team 1, 4, 5, 7, 9, 12 interested by Stress, cell death & cellular reprogramming) and iii) developmental cellular processes (team 3, 7, 10, 11, 13 interested by multiscale integration of biological processes & single cell stochasticity). A common theme is the establishment and use of quantitative systems biology approaches to understanding the physiopathology processes such as Cancer, aging & neurodegenerative diseases. Team leaders have already obtained highly competitive grants (ANR - Chaire d'Excellence, ATIP, ERC). Team leaders at LBMC have national and international recognition (national and international highly competitive grants, memberships, invited conferences, chair of meetings or member of organization committee, CNRS Bronze medal). The LBMC can also benefit from the state-of-the art facilities and the broad panel of technologies and platforms provided by the Federation of the Technical platform on the side of Lyon Gerland (SFR UMS3444 BioSciences Gerland-Lyon Sud). While the LBMC benefits from access to genomics and proteomics facilities, they have established a state-of-the-art BioImaging Core Facility, which was funded by ANR-equipex and offers cutting edge technologies for live and super-resolution microscopy together with the necessary expertise for technical support and maintenance.

The LBMC continues their successful emphasis on experimental approaches in molecular, cellular and developmental biology and now complements this work with quantitative systems biology methods. This combined strategy is reflected in the shared leadership by Mr Pierre JALINOT and Mr Didier AUBOEUF.

Strengths and opportunities in relation to the context

The new scientific focus and direction of the LBMC is promising as well as timely and is supported by the recent recruitment of several promising young scientists. The new scientific direction places the LBMC at the cutting edge of modern cell biology with the opportunity for significant scientific contributions with high impact in the scientific community. This should improve the international visibility and attractivity for fruitful collaborations and help the recruitment of excellent students and scientists. This new direction should also open new opportunities for new grants, translational research and collaborations with national and international companies. A "bio-informatic" open space will be created, in which 20 bio-informaticians (permanent and non-permanent staffs from several teams) will be working together. The LBMC has the ambition to be a leading research unit with strong development in computational methods applied to biological questions.

Weaknesses and threats related to the context

The major challenge is the international competition with better funded groups. The modern cell biology planned by the LBMC for the next five years is ambitious and expensive. The LBMC has several excellent and promising groups that are, however, rather small and have limited resources. The success will depend on the ability of the LBMC teams to secure additional funding, establish fruitful collaborations and synergise with other institutes in Lyon.

Another challenge is the establishment of a new open space for computational and system biology projects which will not be associated with a bioinformatics research lab.

Almost half the number of the current staff will be renewed in the next contract.

Recommendations

The experts committee recommends that the bioinformatics open space be further strengthened by the recruitment of expert scientists that do not only use computational methods but also actively develop new algorithms. Teams contributing to the bioinformatics open-space must participate in its scientific emulation through regular scientific meetings involving bio-informaticians team leaders and other team members.

Also, care should be taken to avoid that young team leaders spread out too thin in countless collaborations potentially delaying or preventing the establishment of their own research profile/reputation. Given the limited resources available, the number of experimental systems and research topics should be limited accordingly to foster synergies and to allow effective and sustained support of promising and successful research teams.

Continue development and structuration of the system biology axis including multidisciplinary approaches around interfaces with Mathematics, Physics and Chemistry from close by institutes.

Several research groups have found their niche but need to be reinforced to reach a more mature level and increase their international visibility. The LBMC needs to improve their international visibility by co-organizing and attending international scientific meetings and by joining forces to obtain more publications in high impact journals.

Mentoring group leaders who are less sucessful in getting competitive grants and provide sufficient support to the young groups (redeployment of permanent staff should be considered).

Continue developing platforms within the SFR Biosciences Gerland frame, specifically reinforcing the genomic/transcriptomic facility.