

FINAL RESUME ON THE RESEARCH UNIT:  
Laboratory of Biology and Modelling of the Cell  
(LBMC)

UNDER THE SUPERVISION OF THE  
FOLLOWING INSTITUTIONS AND  
RESEARCH BODIES:

École Normale Supérieure de Lyon

Centre National de la Recherche Scientifique -  
CNRS

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

Université Claude Bernard Lyon 1 - UCBL

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**EVALUATION CAMPAIGN 2019-2020**  
GROUP A



In the name of Hcéres<sup>1</sup>:

Nelly Dupin, Acting  
President

In the name of the experts committee<sup>2</sup>:

Michel Labouesse, Chairman of the  
committee

Under the decree No.2014-1365 dated 14 November 2014,

<sup>1</sup> The president of Hcéres "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5);

<sup>2</sup> The evaluation reports "are signed by the chairman of the experts committee". (Article 11, paragraph 2).

Tables in this document were filled with data submitted by the supervising body on behalf the unit.

## UNIT PRESENTATION

**Unit name:** Laboratory of Biology and Modelling of the Cell

**Unit acronym:** LBMC

**Current label and N°:** UMR 5239

**ID RNSR:** 200711906R

**Application type:** Fusion, scission, restructuring

**Head of the unit (2019-2020):** Mr Pierre JALINOT

**Project leader (2021-2025):** Mr Didier AUBOEUF

**Number of teams:** 15

## EXPERTS COMMITTEE MEMBERS

**Chair:** Mr Michel LABOUESSE, Sorbonne Université, Paris

**Experts:** Ms Anaïs BAUDOT, CNRS, Marseille  
Mr Marc BOUVILLAIN, CNRS, Orléans  
Ms Aude-Isabelle DUPRE, CNRS, Paris  
Ms Cathie ERB, Inserm, Illkirch  
Mr Manolis FANTO, King's College London, United Kingdom  
Mr Vincent GELI, CNRS, Marseille  
Mr Matthieu GERARD, CEA, Gif-sur-Yvette  
Ms Odile LECOMPTE, Université de Strasbourg  
Ms Claire ROUGEULLE, CNRS, Paris  
Ms Bénédicte SANSON, University of Cambridge, United Kingdom

## HCÉRES REPRESENTATIVE

Mr Hinrich GRONEMEYER

## REPRESENTATIVE OF SUPERVISING BODIES

Ms Catherine NGUYEN, INSERM

## INTRODUCTION

### HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The LBMC was created in 1987 at the opening of the "Ecole Normale Supérieure" (ENS) de Lyon. Since its creation, the activities of the LBMC have focused on fundamental research in cell biology, and are based on the use of various model organisms (yeasts, *C. elegans*, *Drosophila*, rodents, and human cells).

Since its creation, several individual teams have left the LBMC to create separate units, which is a strong mark of the LBMC success in terms of nurturing successful scientists and feeding the local community. In particular, they created a unit that led to the opening in 2013 of the CIRI (Centre International de Recherche en Infectiologie); LBMC teams working on nuclear receptors created the IGFL (Institut de Génomique Fonctionnelle de Lyon) in 2007; and LBMC teams working on neuromuscular processes created the INMG (Institut Neuro-Myo-Gène) in 2016.

The LBMC has taken a significantly different trajectory since the beginning of the present contract in 2016 with the hiring of four new teams (D. AUBOEUF, O. GANDRILLON, M. GRAMMONT, S. PANTALACCI/M. SÉMON) bringing new skills in computational biology and biophysics. As a consequence, the LBMC has changed its name from "Laboratory of Molecular Biology of the Cell" to "Laboratory of Biology and Modelling of the Cell".

### Management team

The current Director is Pierre JALINOT who has headed the LBMC since 2016. Didier AUBOEUF, the current Deputy Director, will become the new LBMC Director. He will be assisted by Gaël YVERT as deputy director.

### HCÉRES NOMENCLATURE

SVE2 Cellular Biology, Molecular Biology, Genomics, Systems Biology

### THEMATICS

The research topics investigated by the LBMC include, the complexity of RNA expression, maturation and translation; the complexity of 4D genome organization; the collective properties of single cells; the function of cellular processes in development and disease and the cellular processes through time and evolution.

### UNIT WORKFORCE

<b>Laboratory of Biology and Modelling of the Cell (LBMC)</b>		
<b>Active staff</b>	<b>Number 06/30/2019</b>	<b>Number 01/01/2021</b>
Full professors and similar positions	2	2
Assistant professors and similar positions	5	6
Full time research directors (Directeurs de recherche) and similar positions	8	9
Full time research associates (Chargés de recherche) and similar positions	13	19
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	0	0
High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	23	23
<b>Permanent staff</b>	<b>51</b>	<b>59</b>

Non-permanent professors and associate professors, including emeritus	0	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	4	
PhD Students	14	
Non-permanent supporting personnel	5	
<b>Non-permanent staff</b>	<b>23</b>	
<b>Total</b>	<b>74</b>	<b>59</b>

## GLOBAL ASSESSMENT OF THE UNIT

The current activities of the LBMC are to understand in space and time the basic biological processes controlling cell proliferation, death and/or differentiation in response to internal and external cues. After the early years, which have been dominated by molecular biology approaches to describe the regulation of cellular processes, the LBMC has progressively developed novel analysis tools. In particular, during the current contract, the LBMC has progressively evolved towards a higher emphasis on systems biology approaches. From this evolution came the strategic decision to invest at multiple levels in computational, mathematical and biophysical modelling. This strategic decision has been implemented in three ways, (1) the hiring of 8 team leaders performed before and during the present contract, (2) the development of a biocomputing hub at the LBMC to assist LBMC teams in handling and interpreting large datasets, including a newly appointed engineer in bioinformatics. The biocomputing hub also provides training, a common server, plus tutelage and training for biologists. It has helped to raise the level of several publications, (3) taking the lead in steering the local community of system biologists through the Biosyl network, which is currently headed by two LBMC team leaders.

In parallel, the LBMC has kept developing the SFR-Biosciences Gerland frame by strengthening the genomic/transcriptomic facility. O. Gandrillon has become the SFR deputy director, which facilitates this objective. Altogether, the clear strategy taken by the LBMC and its implementation are truly impressive. It has already started to pay off, since the global level of publications has raised, and since the LBMC could attract new groups with a high profile (ERC laureates in particular). The current management team should thus be congratulated for their work and their coherent vision.

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