Research evaluation

# FINAL RESUME ON THE RESEARCH UNIT

LBM - Laboratory of Membrane Biogenesis

## UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

Université de Bordeaux

Centre National de la Recherche Scientifique - CNRS

**EVALUATION CAMPAIGN 2020-2021**

GROUP B

Report published on April, 06 2021

High Council for evaluation of research and higher education

| In the name of Hcéres[1]: | In the name of the experts committee[2]: |
| --- | --- |
| Mr Thierry Coulhon, President | Mr Johnathan Napier, Chairman of the committee |

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

[1] The president of Hcéres "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 experts committee". (Article 11, paragraph 2).

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

# UNIT PRESENTATION

**Unit name:**
Laboratory of Membrane Biogenesis
**Unit acronym:**
LBM
**Current label and N°:**
UMR 5200
**ID RNSR:**
200511663K
**Application type:**
Renewal
**Head of the unit (2015-2021):**
Mr Jean-Jacques Bessoule
**Project leader (2022-2027):**
Mr Sébastien Mongrand
**Number of teams and/or themes:**
2

# EXPERTS COMMITTEE MEMBERS

| | |
|---|---|
| **Chair:** | Mr Johnathan Napier, Rothamsted Research, UK |
| **Experts:** | Ms Justine Bertrand-Michel, Inserm, Toulouse (supporting personnel)<br>Ms Catherine Etchebest, Université de Paris (representative of CNU)<br>Mr Ivo Feussner, University of Goettingen, Germany<br>Mr Patrice Lerouge, Université de Rouen<br>Ms Yonghua Li-Beisson, CEA, Aix-en-Provence<br>Mr Eric Marechal, CNRS, Grenoble (representative of CoNRS) |

# HCÉRES REPRESENTATIVE

Mr Steven Ball

# REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Etienne Duguet, Université de Bordeaux
Mme Catherine Rechenmann, CNRS, INSB

# INTRODUCTION

## HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The Laboratoire de Biogenèse Membranaire (LBM) was founded in 1994, as a joint unit between Université de Bordeaux (UB) and CNRS. In 2012, the LBM moved to the "Green Campus" in La Grande Ferrade, Villenave d'Ornon, an INRAE site where laboratories studying plant biology and agronomy are clustered. LBM's main contributions fall in the plant sciences, biochemistry and molecular biology, biotechnology, cell biology and multidisciplinary web of science categories. The research activities of the unit focus on the metabolism and physiological roles of lipids in vascular plants, using Arabidopsis as a main study model, and to some extent in yeast and green algae. Studied lipids include membrane glycerolipids, sphingolipids, sterols, storage glycerolipids, and surface lipids. The LBM was organized in three teams, addressing plant plasma membrane domains (team 1), membrane compartmentalization, trafficking and morphogenesis in plants and yeast (team 2) and the integrative biochemistry of plant lipid metabolism (team 3). The unit was recently reorganized into two teams. All LBM teams are located in a common building, close to shared facilities, ensuring an easy access to a lipidomic platform, previously located in a remote university site, the transfer and assembly of which in the new building and operational setting proved to be challenging. The LBM is also located close to cutting edge imaging facilities on the Green campus, of primary importance for its research.

## RESEARCH ECOSYSTEM

The relocation of the LBM to the Green Campus proved to be a unique opportunity to benefit from mutualized INRAE facilities (which is not a funding body for this unit), most importantly virus-proof safety greenhouses to grow plants, and an imaging center (plateforme d'imagerie du végétal, PIV), adjacent to the LBM building, which is vital for most research projects achieved by LBM teams. The lipidomic platform settled in the LBM is essential for the studies performed in the unit, but is also open to external collaborations, as one component of a larger network of technical platforms dedicated to metabolomics at the UB. The local ecosystem is also strongly structured by the integration of the LBM in the Research Department of Environmental Sciences of UB, giving further access to shared facilities for bioinformatics (Centre de Bioinformatique de Bordeaux), structural bio-physico-chemistry (Plateforme de biophysicochimie structurale) and multiple omics, such as transcriptomics or proteomics. Increasing the ties and ensuring a strong level of integration in the local scientific network, multiple laboratory members took responsibilities at the UB faculty. The LBM is one of the units of the life science institute of CNRS (INSB) in the national network of laboratories and institutes of the integrative plant biology section. Its integration in national and international collaborative networks is driven by the research priorities and strategies of each team.

## HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

SVE1_1 Biologie cellulaire et biologie du développement végétal

SVE2_1 Biologie moléculaire et structurale, biochimie ;

SVE1_3 Biotechnologies, sciences environnementales, biologie synthétique, agronomie

## MANAGEMENT TEAM

***Present LBM unit head: Mr Jean-Jacques BESSOULE***

***Future LBM unit head: Mr Sébastien MONGRAND***

***Future deputy head: Jérôme JOUBES***

## UNIT WORKFORCE

**LBM**

| **Active staff** | **Number 06/01/2020** | **Number 01/01/2022** |
|---|---|---|
| Full professors and similar positions | 4 | 4 |
| Assistant professors and similar positions | 4 | 4 |
| Full time research directors (Directeurs de recherche) and similar positions | 4 | 4 |

| | | |
|---|---|---|
| Full time research associates (Chargés de recherche) and similar positions | 6 | 6 |
| 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) | 11 | 6 |
| **Permanent staff** | **29** | **24** |
| Non-permanent professors and associate professors, including emeritus | 0 | |
| Non-permanent full time scientists, including emeritus, post-docs (except PhD students) | 0 | |
| PhD Students | 7 | |
| Non-permanent supporting personnel | 11 | |
| **Non-permanent staff** | **18** | |
| **Total** | **47** | **24** |

# GLOBAL ASSESSMENT OF THE UNIT

The mission of the LBM is to carry out "research on the metabolism and physiological function of lipids in cellular membranes and other lipid-assembled structures of higher plants, microalgae and yeast". The LBM unit has a long and established position in national and international research communities and is recognized by both as a centre of excellence in fundamental research and also a hub for collaborations, training etc. The reputation of LBM is founded on not just a continuously improving upward trajectory, evidenced by high impact publications, external funding and external visibility, but also by a highly collegiate and functional internal ethos and culture. This "tone" has been established by the senior leaders of the LBM over a number of years, and this has percolated through the entire unit to generate an enviable and effective team which has a strong sense of purpose and identity. Such a spirit is rare, and the whole of the LBM should be commended for nurturing such a collaborative working environment.

Taking into account the size of this two-team unit, the scientific outputs of the LBM were at least excellent as a whole, with clear outstanding elements in particular for the "membrane dynamics in intra- and inter-cellular trafficking" team, while the ones of the team "functions of lipids in plant response to environmental changes" were very good to excellent. If the small size of the unit is taken into account then such outputs can be considered as an outstanding achievement, with a significant percentage of publications in high impact journals, including the very highest journals such as *Science*. This record confirms the leading-edge reputation of the unit, as does the funding of several ERC grants. Interactions with the non-academic world were very good, with excellent outreach to schools and local society. The LEB Aquitaine Transfert management structure could become even more effective by closer working with LBM research teams. The Lipidomics Platform is essential for the functionality of the LBM and has excellent capabilities. Training through research was excellent, with the vast majority of PhD students graduating with first author publications. The management and organization of the unit is demonstrably highly effective, based on the successful environment that has been generated. Representatives at all levels of the unit spoke very highly of this collegiate culture and enjoyed working at LBM. The future strategy of the LBM is excellent with the continuing potential to be outstanding. The rearrangement of the teams to reflect demographic changes in staff is both logical and enabling, providing new and enhanced opportunities for research excellence and collaboration.

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