

Research evaluation

FINAL RESUME ON THE RESEARCH UNIT: Plant and Cell Physiology Laboratory (LPCV)

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

Université Grenoble Alpes - UGA Centre National de la Recherche Scientifique - CNRS Commissariat à l'Énergie Atomique et aux Énergies Alternatives - CEA Institut National de la Recherche Agronomique -INRA

EVALUATION CAMPAIGN 2019-2020 GROUP A

Report published on March, 19 2020



In the name of Hcéres¹:

Nelly Dupin, Acting president

In the name of the experts committee²:

Jorg Nickelsen, Chairman of the committee

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

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

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



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

UNIT PRESENTATION

| Unit name: | Plant and Cell Physiology Laboratory |
|----------------------------------|--------------------------------------|
| Unit acronym: | LPCV |
| Current label and N°: | UMR 5168 CNRS, 1417 INRA |
| ID RNSR: | 200317477N |
| Application type: | Renewal |
| Head of the unit (2019-2020): | Mr Éric Maréchal |
| Project leader (2021-2025): | Mr Éric Maréchal |
| Number of to such and /or | |

Number of teams and/or 9 themes:

EXPERTS COMMITTEE MEMBERS

| Chair: | Mr Jorg NICKELSEN, LMU Munich, Germany |
|----------|--|
| Experts: | Mr Yohann Bouπé, CNRS-Bordeaux Aquitaine (representative of CoNRS) |
| | Mr Fabrice FRANCK, University of Liège, Belgium |
| | Ms Antonella Furini, University of Verona, Italy |
| | Mr Daniel GRIMANELLI, IRD-Montpellier |
| | Ms Elisabeth JAMET, LRSV, CNRS, Auzeville (representative of CNU) |
| | Ms Yonghua Li-Beisson, CEA Cadarache, Aix-en-Provence |
| | Mr Christian Meyer, INRA-Centre de Versailles-Grignon (representative of |
| | Mr Xavier Nesme, INRA-Centre Auvergne-Rhône-Alpes (supporting personnel) |
| | Ms Claire REMACLE, University of Liège, Belgium |

HCÉRES REPRESENTATIVE

Mr Serge DELROT

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Ms Carole Caranta, INRA Mr Jérôme Garin, CEA Ms Susana Gota-Goldman, CEA



Ms Anne MILLET, University Grenoble Alpes

Ms Catherine RECHENMANN, CNRS



INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The Laboratoire de Physiologie Cellulaire & Végétale (LPCV) was founded in 1979 and was headed by directors (until 2002) or by directing teams (since 2002). LPCV's main contributions fall in the plant science, biochemistry and molecular biology, cell biology and multidisciplinary WOS categories.

Located in Grenoble, LPCV represents a joint research unit of the CNRS, CEA, UGA, and INRA (INRAE in 2020) and is hosted by the CEA on the East campus of Grenoble. Together with IBS (Institute of Structural Biology), it forms the department DBSCI (Integrative Structural and Cellular Biology) as part of the IRIG (Interdisciplinary Institute of Grenoble). As a consequence, LPCV is integrated into the strategies and networks of these institutions. Moreover, LPCV is integrated into the excellence initiative GRAL LabEx (Grenoble Alliance for Integrated Structural Cell Biology) since 2011 which is dedicated to deciphering of protein structure, dynamics and function in their cellular context. In 2018, the related GRAL2 project was funded for another 10 years. The research ecosystem of the LPCV unit additionally includes the ESRF (European Synchrotron Facility) and ILL (Institute Laue Langevin) on the EPN (European Photon & Neutron) campus providing expertise in structural biology and membrane biophysics, respectively. In addition, LPCV was co-founder of EUR CBS (chemistry, biology and health), a graduate school of research on chemistry, biology and health.

To date the LPCV unit is distributed on three buildings at the campus as well as a laboratory at the Hôpital Saint-Louis in Paris.

MANAGEMENT TEAM

Present and future LPCV unit head: Mr Eric MARECHAL

Present and future deputy head: Mr François PARCY

HCÉRES NOMENCLATURE

SVE1 Agronomie, biologie végétale, écologie, environnement, évolution

THEMATICS

The overarching scientific objective of the LPCV unit is the discovery of the functional organization within eukaryotic cells with an emphasis on plant cells. This organization is studied at scales ranging from the molecule to organellar, cellular, up to the organismic level. Model organisms are selected based on the specific scientific questions and cover the whole repertoire of eukaryotic organization schemes including non-photosynthetic yeast and animal cells as well as primary and secondary photosynthetic endosymbionts, e.g., plants, green algae and diatoms. For the future, the increasing importance of algal model systems for both basic and applied research aspects is taken into consideration. In particular, the applied aspect of the scientific strategy is supported by LPCV. Three main thematic axes are and/or will be addressed by LPCV, *i.e.*, (i) photosynthesis and metabolism, (ii) morphogenesis and development, (iii) response and adaptation to a changing abiotic environment. These axes are complemented by three technological axes, namely (i) integrative structural biology, (ii) multi-omics computational biology and (iii)multiscale imaging.

UNIT WORKFORCE

| Plant and Cell Physiology Laboratory | | |
|---|----------------------|----------------------|
| Active staff | Number 06/30/2019 | Number 01/01/2021 |
| Full professors and similar positions | 0 | 0 |
| Assistant professors and similar positions | 5 | 5 |
| Full time research directors (Directeurs de recherche) and similar positions | | 10 |
| Full time research associates (Chargés de recherche) and similar positions | | 9 |
| Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.") | 10 | 8 |
| High school teachers | 0 | 0 |
| Supporting personnel (ITAs, BIATSSs and others, notably of EPICs) | | 20 |
| Permanent staff | 55 | 52 |
| Non-permanent professors and associate professors, including emeritus | 0 | |
| Non-permanent full time scientists, including emeritus, post-docs (except PhD students) | 16 | |
| PhD Students | 19 | |
| Non-permanent supporting personnel | | |
| Non-permanent staff | 50 | |
| Total | 105 | 52 |

GLOBAL ASSESSMENT OF THE UNIT

LPCV is an extremely successful research unit of high international visibility that aims at keeping its extraordinary scientific productivity in the future. Moreover, new scientific focus on algal systems and application of state-of-the-art imaging techniques promise novel, ground-breaking insights into eukaryotic cell biology. To achieve this goal, the planned reorganization into three scientific and three technological transversal axes provides a perfect frame for the further strategic development of the LPCV unit.

During the last period, LPCV members have published an impressive number of articles, several of which in highest impact, multidisciplinary journals. In total, three ERC grants are coordinated by unit members and additional funding is provided by federal agencies as well as private companies. In line with the latter ones, LPCV has a remarkable outreach into the non-academic world via tight socio-economic collaborations with industry and many highly valuable contributions in public media, e.g., on GMO-related topics.

LPCV's contribution to the training of students through research is strong. With a limited number of professors, the unit succeeded in establishing the PLANTA-International Master program with the University of Milano. LPCV is very professionally managed by a direction team and complementary councils as well as additional internal bodies including common services and technological platforms. However, unit's life is affected by the separation of the teams on different buildings.

No significant weaknesses in LPCV were identified except for the poor working conditions in outdated laboratories which are likely to limit the further outstanding scientific performance of the unit.

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