

FINAL RESUME ON THE RESEARCH UNIT:

Laboratory of Plant-Microbe Interactions

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

Institut National de la Recherche

Agronomique - INRA

Centre National de la Recherche Scientifique -
CNRS

EVALUATION CAMPAIGN 2019-2020
GROUP A

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In the name of Hcéres

Nelly Dupin, Acting
President

In the name of the experts committee²:

Marc-Henri Lebrun, 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).

UNIT PRESENTATION

Unit name:	Laboratory of Plant-Microbe Interactions
Unit acronym:	LIPM
Current label and N°:	INRA 0441 - CNRS 2594
ID RNSR:	198017827U
Application type:	Renewal
Head of the unit (2019-2020):	Mr Claude BRUAND
Project leader (2021-2025):	Mr Laurent NOËL
Number of teams and/or themes:	13

EXPERTS COMMITTEE MEMBERS

Chair:	Mr Marc-Henri LEBRUN, INRA Centre de Versailles-Grignon
Experts:	Ms Nicole COTTE-PATTAT, CNRS-INSA Lyon
	Mr Denis FAURE, CNRS-Institut de Biologie Intégrative de la Cellule
	Ms Valérie GEFFROY, INRA-Institut de Sciences des Plantes - Paris-Saclay
	Ms Aska GOVERSE, Wageningen University, Netherlands
	Mr Oliver KALTZ, CNRS-Université de Montpellier
	Mr Laurent LAPLAZE, IRD Montpellier (representative of CoNRS)
	Mr Xavier NESME, INRA-Centre Auvergne-Rhône-Alpes (supporting personnel)
	Mr José PALACIOS, Universidad Politecnica de Madrid, Spain
	Ms Uta PASZKOWSKI, University of Cambridge, UK
	Mr Patrick SAINDRENAN, Université Pierre et Marie Curie

HCERES REPRESENTATIVE

Mr Pascal SIMONET

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Ms Catherine RECHENMANN, CNRS

Mr Peter ROGOWSKY, INRA

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

LIPM is a long-standing and internationally recognized research institute devoted to the study of plant-microbe interactions founded in 1981. LIPM is a joint CNRS-INRA research unit (UMR) that also hosts teachers from Toulouse University/Schools (Université Paul Sabatier, INSA, ENSAT). CNRS institutes INSB and INEE, and INRA departments SPE and BAP, supervise this UMR.

LIPM is located in a highly favorable research ecosystem, since most Toulouse plant science units (LIPM, LRSV, GBF, CNRGV, DYNAFOR, AGIR) are located on the same campus (Auzeville). These geographical and thematic proximities are supported by transversal organizations such as the research Federation FR-AIB (Agrobiosciences, Interactions, Biodiversity) and the Labex Tulip ("Towards a unified theory of biotic interactions: effect of environmental perturbations"). LIPM also benefits from platforms located on the campus such as GenoToul/GeT.

MANAGEMENT TEAM

LIPM director for the current period is M. Claude BRUAND with M. Stéphane GÉNIN as deputy director. The new director will be M. Laurent Noël with M. Nemo PEETERS as deputy director.

HCÉRES NOMENCLATURE

SVE3_1 Microbiologie

SVE1_1 Biologie Cellulaire et biologie du développement végétal

SVE2_2 Génétique, Génomique, Bio-informatique, biologie systémique

SVE1_2 Évolution, écologie, biologie des populations

SVE1_3 Biotecnologies, sciences environnementales, biologie synthétique, agronomie

THEMATICS

The main scientific activity of LIPM is the study of plant-microbe interactions either symbiotic or pathogenic, with both fundamental and applied objectives (improved nitrogen fixation, plant disease protection). LIPM is also involved in sunflower breeding. LIPM's main goal is to increase our knowledge of plant-microbe interactions, for either the molecular mechanisms involved, or their evolution, or the impact of biotic (ecology) and abiotic (stress) environments.

The main LIPM research topics consist of studies on:

1. The molecular and evolutionary mechanisms involved in root endosymbiosis with an emphasis on Rhizobium endosymbiosis of Medicago roots;
2. The molecular and evolutionary mechanisms involved in plant pathogenicity and host resistance (bacteria, fungi, oomycetes, plant parasite), with an emphasis on Xanthomonas and Ralstonia bacterial pathogens of Arabidopsis/tomato;
3. The impacts of biotic and abiotic environments on these interactions. This last thematic is transversal to LIPM as it concerns teams working on topics 1 and 2, and teams with research projects focused on this topic.

UNIT WORKFORCE

Laboratory of Plant-Microbe Interactions		
Active staff	Number 06/30/2019	Number 01/01/2021
Full professors and similar positions	1	1
Assistant professors and similar positions	6	5
Full time research directors (Directeurs de recherche) and similar positions	20	17
Full time research associates (Chargés de recherche) and similar positions	20	20
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)	50	49
Permanent staff	97	92
Non-permanent professors and associate professors, including emeritus	0	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	5	
PhD Students	28	
Non-permanent supporting personnel	15	
Non-permanent staff	48	
Total	145	92

GLOBAL ASSESSMENT OF THE UNIT

The research performed at LIPM is mostly focused on the study of plant microbe interactions. LIPM has regularly produced major breakthroughs on our understanding of both plant symbiosis and interactions between plants and pathogenic bacteria. As such, LIPM is one of the major French institutes working on plant microbe interactions and it has a strong international recognition in working-out key molecular mechanisms involved in these biological interactions. LIPM has been successful in keeping a high level of fundamental research in its areas of expertise, and exploring new fields of research on these interactions (epigenomics, experimental evolution, ecological genomics, impact of environment, systems biology). Research performed at LIPM has provided a very nice qualitative and quantitative scientific publication output. LIPM was able to obtain a large number of competitive public and private grants, and was strongly supported by local scientific organizations (FR-AIB, Labex TULIP). LIPM has been successful in obtaining one ERC grant (one of the few in France in this research area). It has also coordinated one Investissement d'Avenir ANR project on sunflower (Sunrise). One key feature of LIPM is its success in training PhD students. LIPM also displayed strong interactions with the socio-economic world, mainly with plant breeding companies. LIPM was very successful in their outreach with the public on biological sciences. The management of LIPM was very efficient in driving a strong participative management and supporting all research areas. In conclusion, LIPM is a research unit internationally recognized for its breakthroughs and basic and applied research outputs in plant microbe interactions (symbiosis, pathogenicity) and sunflower genomics.

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