



# LRSV - Laboratoire de recherche en sciences végétales

## Rapport Hcéres

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# HCERES

High Council for the Evaluation of Research  
and Higher Education

Research units

HCERES report on research unit:

Plant Science Research Laboratory

LRSV

Under the supervision of  
the following institutions  
and research bodies:

Université Toulouse 3 - Paul Sabatier - UPS

Centre National de la Recherche Scientifique - CNRS

# HCERES

High Council for the Evaluation of Research  
and Higher Education

Research units

*In the name of HCERES,<sup>1</sup>*

Didier Houssin, president

*In the name of the experts committee,<sup>2</sup>*

Thierry ROUXEL, chairman of the committee

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

<sup>1</sup> The president of HCERES "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 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:	Plant Science Research Laboratory
Unit acronym:	LRSV
Label requested:	Unité Mixte de Recherche
Present no.:	UMR 5546
Name of Director (2014-2015):	Ms Elisabeth JAMET
Name of Project Leader (2016-2020):	Mr Bernard DUMAS

## Expert committee members

Chair:	Mr Thierry ROUXEL, INRA Thiverval-Grignon
Experts:	Mr Paul BIRCH, James Hutton Institute, UK
	Mr Azeddine DRIOUICH, Université de Rouen
	Mr Herman HOFTE, INRA Versailles
	Ms Franziska KRAJINSKI-BARTH, Max Planck Institute of Molecular Plant Physiology, Golm, Germany
	Mr Bruno TOURAINE, Université de Montpellier 2 (representative of the CNU)
	Ms Ute C. VOTHKNECHT, Ludwig Maximilian University of Munich, Germany
	Mr Fabrice WATTEBLED, Université de Lille 1 (representative of the CoNRS)

### Scientific delegate representing the HCERES:

Mr Steven G. BALL

### Representatives of the unit's supervising institutions and bodies:

Mr Thierry GAUDE, CNRS, INSB

Mr Claude MARANGES, INSA (head of the Doctoral School « Sciences Écologiques, Vétérinaires, Agronomiques et Bioingénieries » - SEVAB - ED n° 458)

Mr Alexis VALENTIN, Université Paul Sabatier - Toulouse 3

## 1 • Introduction

### History and geographical location of the unit

The LRSV (*Laboratoire de Recherche en Sciences Végétales*, formerly SCSV- *Surfaces Cellulaires et Signalisation chez les Végétaux*) UMR is a joint laboratory (Unité Mixte de Recherche, UMR 5546) of the Paul Sabatier (UPS)-Toulouse 3 University and the CNRS (INSB). The joint unit currently contains 23 teaching staff members (professors and assistant professors) and 10 CNRS researchers (directeurs de recherche and chargés de recherche). The technical staff is composed of 25 members (13 UPS and 12 CNRS) ranging from Ingénieur de recherche to AJT. There are currently 21 PhD students and 4 postdocs.

The budget of the lab is in the 950 k€ range per year.

LRSV moved in 1999 from the main UPS campus in Rangueil (Toulouse) to the INRA campus of Auzeville close to Toulouse where it is now located. During the evaluated period, the UMR went through significant restructuring, both in terms of staff movement (in and out) and team number and structure. Overall, respectively 18 permanent staff left the unit and 17 joined. This represents a turnover of one third of the permanent staff.

### Management team

Since 2011, LRSV has been directed by the Dr Elisabeth JAMET/Pr Christophe ROUX tandem as director/deputy director. An administration manager, Ms Michèle ESCASSUT (CNRS engineer) is in charge of coordinating the "common facilities" service. The management team is assisted by the laboratory council and the scientific council. LRSV encompasses 6 scientific research teams with a high level of scientific autonomy, each of which is managed by a group leader. For the next period, it is proposed that a new management team takes the lead, comprising Dr Bernard DUMAS (DR2 CNRS) as director and Prof Vincent BURLAT (PR UPS) as deputy director.

### HCERES nomenclature

Sous domaine AEE (Agronomie Écologie Environnement)

Sous-domaine principal SVE2 LS3

Sous-domaine secondaire SVE2 LS9

### Unit workforce

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
<b>N1:</b> Permanent professors and similar positions	23	23
<b>N2:</b> Permanent researchers from Institutions and similar positions	10	9
<b>N3:</b> Other permanent staff (without research duties)	25	24
<b>N4:</b> Other professors (Emeritus Professor, on-contract Professor, etc.)	2	2
<b>N5:</b> Other researchers (Emeritus Research Director, Postdoctoral students, visitors, etc.)		
<b>N6:</b> Other contractual staff (without research duties)	8	
<b>TOTAL N1 to N6</b>	<b>68</b>	<b>58</b>

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
Doctoral students	21	
Theses defended	32	
Postdoctoral students having spent at least 12 months in the unit	7.5	
Number of Research Supervisor Qualifications (HDR) taken	6	
Qualified research supervisors (with an HDR) or similar positions	24	24

## 2 • Overall assessment of the unit

### Global assessment of the unit

LRSV is a research entity devoted to research on plant development, adaption to biotic and abiotic stresses, the analysis of endomycorrhizal fungal symbiosis and plant pathogenic oomycetes. The scientific production of the unit is excellent with some important breakthroughs obtained in a series of domains, resulting in publications in very high Impact Factor journals. Widely accessed on-line databases contribute to the appeal of the scientific production of the unit. The interaction with the socio-economic world is very good, with some notable successes, but shows a high level of disparity from one team to the other. There are successful efforts to interact significantly with industry. The overall management and organisation of the unit has been excellent-to-outstanding over the evaluation period. LRSV is strongly involved in teaching and organisation of teaching at UPS in a variety of areas. Training of students through research activities is also strong at LRSV and the unit is considered excellent for this criterion. The unit should aim to strengthen its international reputation and develop further its international and national collaboration networks to increase its attractiveness to recruit high quality foreign PhDs and postdoctoral fellows.

### Strengths and opportunities in relation to the context

Close proximity to the main UPS campus and a strong involvement of university staff in teaching at UPS provides an excellent platform to attract students and LRSV hosts an impressive number of PhD and other postgraduate students who strongly contribute to the quality of the research. Numerous opportunities are available and have been seized to explore collaboration and joint funding with teams in similar fields of expertise in the local region (for example, LabEx TULIP, the Research Federation AIB (Agrobiosciences, Interaction and Biodiversity)). This further enhances the potential for high-impact research through collaboration. There is also a very dynamic regional environment for translational research. The unit is embracing this opportunity with a number of initiatives, such as BioPlantProtect, which brings together expertise in plant and microbial genomics at the unit with industrial partners keen to seek natural products that promote plant protection. Some of the specific research areas and topics are highly original, with little competition internationally (for example, the research on Eucalyptus and Arbuscular Mycorrhizae (AM) fungi).

### Weaknesses and threats related to the context

The research entity is organised as six independent teams, each one having its own leadership and scientific policy, and common facilities overseen by an administration manager. Anticipated short-term retirement of key persons in the common facility services (including the administration manager) represents a major challenge for the unit, as external contracts, for example, are increasingly complex to audit. Despite an improvement since the last evaluation, the lack of attractiveness of the LRSV can still be perceived as a threat to the recruitment of highly qualified international post-docs and foreign PhD students. The move toward translational research is inequally distributed between teams. The reduction in time to complete a PhD project to three years, coupled with the requirement for a publication within that period, has the potential for premature publication of research that could

be targeted to higher impact journals, given sufficient time. Finally, the demographic profile of the unit highlights an ageing population of CNRS researchers.

### Recommendations

The unit needs an active policy to attract new, up-and-coming research leaders to apply for CNRS positions with them.

The quality of research is excellent but there is a need to increase international visibility. To help facilitate this, the committee of experts strongly recommends that the laboratory should implement a 'policy of participation' for all PhD students at international congresses.

A number of topics that link teams have been developed as collaborative, multidisciplinary projects facilitated by the sharing of PhD students. This, however, remains the exception rather than the rule, and more collaboration between teams should be promoted.

Some of the teams have strong links and on-going collaboration with LIPM (mainly) and other local institutions through the FR AIB and common projects in the frame of the TULIP LabEx. However, it is important to increase relevant collaborations with local teams involved in similar research topics to build critical mass and overall impact.

The anticipated short-term retirement of key personnel in the common facility services (including the administration manager) is an important issue for the unit and it is recommended that the research unit finds an adequate solution to this issue.

The panel recommends that the strong collaborations and interactions between LRSV and LIPM (Laboratoire Interactions Plantes Microorganismes) are further enhanced by joint organisation of PhD and post-doctoral fellows meetings between the units.

Efforts should be pursued to enhance access to the Genotoul platform. Also the panel believes that the unit must increase its bioinformatics strength to meet the amount of analyses anticipated by metabolomic and phenomic approaches.

There is a strong history of translational research within certain LRSV teams. The panel firmly supports the vision to build translational research into the overall scientific culture and mission of the unit.

The panel recommends that the unit develops a clear strategy to link with, and exploit, the opportunities presented by the Botanical Garden, both in terms of public engagement and scientific (biodiversity) research.