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LGPD - Laboratoire Génome et développement des plantes

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agence d'évaluation de la recherche
et de l'enseignement supérieur

Department for the evaluation of
research units

AERES report on unit:

Laboratoire Génome et développement des Plantes

LGDP

Under the supervision of
the following institutions
and research bodies:

Université de Perpignan Via Domitia - UVHC

Centre National de la Recherche Scientifique - CNRS



December 2013



agence d'évaluation de la recherche
et de l'enseignement supérieur

Department for the evaluation of
research units

*On behalf of AERES, pursuant to the Decree
of 3 november 2006¹,*

- Mr. Didier HOUSSIN, president
- Mr. Pierre GLAUDES, head of the
evaluation of research units department

On behalf of the expert committee,

- Mr Jean-Pierre JACQUOT, chair of the
committee

¹ The AERES President "signs [...], the evaluation reports, [...] countersigned for each department by the director concerned" (Article 9, paragraph 3 of the Decree n ° 2006-1334 of 3 November 2006, as amended).



Evaluation report

This report is the result of the evaluation by the experts committee, the composition of which is specified below.

The assessment contained herein are the expression of independent and collegial deliberation of the committee.

Unit name:	Laboratoire Génome et Développement des Plantes
Unit acronym:	LGDP
Label requested:	UMR
Present no.:	5096
Name of Director (2013-2014):	Mr Jean-Marc DERAGON
Name of Project Leader (2015-2019):	Mr Jean-Marc DERAGON

Expert committee members

Chair: Mr Jean-Pierre JACQUOT, Université de Lorraine (representative of CNU)

Experts:

- Mr Mark BAYFIELD, York University Toronto, Canada
- Mr Bruno CHARPENTIER, Université de Lorraine
- Ms Claudia KÖHLER, SLU Uppsala, Sweden
- Ms Claire Lurin, INRA Evry (representative of the CoNRS)
- Mr Olivier MATHIEU, CNRS Clermont-Ferrand
- Mr Pierre ROUZE, VIB Ghent, Belgium

Scientific delegate representing the AERES:

Mr Steven BALL

Representative(s) of the unit's supervising institutions and bodies:

Mr Didier AUSSEL (representative of Doctoral School n° 305)

Mr Thierry GAUDE, CNRS

Mr Xavier PY, Université de Perpignan Via Domitia



1 • Introduction

History and geographical location of the unit

The LGDP lab or its ancestor was established in 1966 and has been associated to the CNRS ever since. It is now an UMR between CNRS and UPVD (Université de Perpignan Via Domitia) located in Perpignan. This location next to the large research centers of Barcelona is very favourable for international interactions. Also the proximity to the Plant Biology-oriented research groups of Montpellier is suitable for fruitful cooperation.

Management team

Mr Jean-Marc DERAGON, director. He is assisted by a technical assistant director and technical services also coordinated by a technical assistant.

AERES nomenclature

Primary Domain:

LS1_Biologie Structurale et Moléculaire, Biochimie

Secondary Domain:

LS2_Génétique, Génomique, Bioinformatique

LS3-2_Biologie cellulaire et biologie du développement végétal

LS8_Evolution, Ecologie, Biologie des Populations

Unit workforce

Unit workforce	Number as at 30/06/2013	Number as at 01/01/2015
N1: Permanent professors and similar positions	10	10
N2: Permanent researchers from Institutions and similar positions	9	9
N3: Other permanent staff (without research duties)	15 (4)	14 (4)
N4: Other professors (Emeritus Professor, on-contract Professor, etc.)		
N5: Other researchers from Institutions (Emeritus Research Director, Postdoctoral students, visitors, etc.)	3	2
N6: Other contractual staff (without research duties)	3	1
TOTAL N1 to N6	40 (29)	36 (26)



Unit workforce	Number as at 30/06/2013	Number as at 01/01/2015
Doctoral students	5	
Theses defended	15	
Postdoctoral students having spent at least 12 months in the unit		
Number of Research Supervisor Qualifications (HDR) taken	2	
Qualified research supervisors (with an HDR) or similar positions	8	7

2 • Assessment of the unit

Strengths and opportunities related to the context

The LGDP laboratory is situated in a small University (Perpignan). It is a structure with a staff of nearly 40 permanent members, nearly half of the senior researchers being CNRS employees. It has thus a rather large-size CNRS staff in relation with the relatively small size of the unit. The lab is organized in 5 teams and several shared platforms. The scientific output of LGDP is excellent with a large number of publications in high quality journals. They have done in particular a number of breakthroughs in the fields of genome organization analysis, epigenetics and regulation linked to stress response. The local, national and international networking of the different teams is of high quality as they have collaborated with one another, but also with several top teams in their respective fields. The publications generated are in general extremely well cited and the international recognition of the researchers is high. Their capacity to get grants (particularly ANR) is very good. Funding by CNRS is one of the highest per capita for plant labs, being nearly at the level of UPR (Unité Propre de Recherche) structures. This is clearly recognition of the high quality research performed in Perpignan. The functioning of the lab seems to run smoothly thanks to the efforts of the director and of the team leaders. Of particular importance is the distribution of tasks of the technical staff between groups and platforms which seems to be satisfactory to everybody. Decisions are made collegially and the different categories of staff and students have expressed deep satisfaction concerning their working conditions. The projects of the different research teams have been highly rated, as necessary adjustments have been made to steer research in the right direction. There is every reason to believe that LGDP should be able to continue on the path of excellence, provided public funding does not dry up in the next contract.

Weaknesses and threats related to the context

One weakness that was noted by the committee is that the lab has got only public grants. They do not perform translational research, nor do they plan to do it in the project that has been presented to the committee. It has been argued that, as a CNRS lab, their mission is to do basic research which does not necessarily imply pursuing private contracts. Nevertheless, if future public funding dries up, the financial equilibrium of the structure could be difficult to maintain. This has been discussed between the committee, the team leaders and the director. They are aware of this danger and are still in the process of defining the best opportunities for obtaining grants from the private sector. Another minor threat is the relatively small size of some of the groups (sometimes only two to three permanent staff, the assistant professors being also quite busy with teaching and administrative duties). LGDP has to pay attention to this, especially as there are few colleagues retiring during the next contract and so few opportunities for position replacement. The director and team leaders have indicated on several occasions that the private sector in agro-industry is severely restricted in the Perpignan area and that the high unemployment rate does not help attracting outside colleagues, due to the difficulties in obtaining a job for either husband or spouse. The opportunity to attract a new team leader (and a new team) vs reinforcing present teams has also been debated with the committee.



Recommendations

The committee wishes to indicate first that the project builds on acquired know how and competences of the staff. In general, it is well balanced and achievable. It is expected that there should be no major problem for maintaining high standards of research in LGDP in the next contract as the organization of the lab seems to run smoothly. The involvement of team members in University and CNRS councils is helpful and should be continued. The University (a structure of modest size) and CNRS have pledged their support for this team which is a major player in the narrow biological field of Perpignan, so there is no cause for concern there. The committee advises LGDP to maintain and strengthen its international ties with Catalogne as they are in an ideal geographical position for this purpose. Also the scientific relations with Montpellier should absolutely be maintained. It is also suggested, if possible, to try to obtain private contracts in the future in order to secure a more diverse source of funding. Finally, attention should be paid to maintain the staff in the various research teams at a level sufficient for competing internationally. Attracting more post docs would be desirable to strengthen the lab's international recognition.



3 • Detailed assessments

Assessment of scientific quality and outputs

Overall, the scientific production quality of LGDP ranges between very good to outstanding with an “excellent” average. Given the moderate size of the lab, a large number of top quality papers have been produced in high ranking international journals (Nature, Science, PNAS, Plant Cell, Mol Cell, EMBO J etc...). These papers are already well quoted, they include quite often collaborators with high reputation in the field. Nevertheless, on several occasions, LGDP researchers are clearly the leaders of the project. In other words, they have created a network of excellent collaborators but they maintain a very good rank in this network with original contributions where they are leading.

Assessment of the unit's academic reputation and appeal

This has already been discussed in the summary statement and previous paragraph. LGDP has true outstanding international collaborations with top class researchers from Switzerland, USA, Taiwan, Spain, Chile, UK etc... but also with top French researchers. Nevertheless they have difficulties in attracting post-docs in Perpignan, perhaps because of the economic situation in Languedoc Roussillon and neighbouring Catalunya. They have a regular flow of PhD students from the Perpignan Ecole doctorale and also from Labex and ANR grants. Still a higher number of students could be trained, especially in the groups with several CNRS researchers. One indicator of the high LGDP's reputation was the election of one of its members to the French Academy of Sciences, but they also participate to many other French and international committees.

Assessment of the unit's interaction with the social, economic and cultural environment

This is possibly the weakest point of LGDP assessed as good with the following comments:

While they are doing much effort in terms of interaction with the social environment (eg unanimous participation of all the groups to the Fête de la Science, welcome of junior high school and primary school students), there is little or no activity to report with the industry, which could become critical in the short future. The researchers and director of LGDP are well aware of this problem and wish to fix it. It is not clear yet what path they will follow to do that. A number of efforts have been made to reach information networks.

Assessment of the unit's organisation and life

This can be clearly considered as a success story. This is due both to the current director's actions and also to a good spirit of collaboration within the board of group leaders. Obviously, LGDP has in the past known some turbulence but those days are apparently over and the organization of the lab can be considered as outstanding. During the visit all staff categories have expressed satisfaction at the way things were currently run. It was mentioned several times that they function collegially and not top to bottom. The organization of the technical platforms seems also to be a success and the good atmosphere in the lab is reflected by the high proportion of shared grant money. Still they should aim at an IBIZA ranking of their technical facilities.

Assessment of the unit's involvement in training through research

Nearly half of the LGDP staff are teaching at the Bachelor and Master levels. Additionally, they have trained more than 15 PhD students in the last contract. This seems like a reasonable number taking into account the relatively small size of the Perpignan University and École Doctorale (typically they obtain 1-2 PhD grants from the French Ministère de la Recherche et de l'Enseignement Supérieur per year). The number of post docs is relatively modest and should be improved, if possible, in the next contract. Overall, the involvement in teaching through research is very good to excellent.



Assessment of the strategy and the five-year plan

The research project of LGDP was presented team by team. They have taken into account the changes in staff size especially in Teams 1 and 5 and reduced some projects accordingly. All projects are convincing and quite well balanced. They have been rated between very good and outstanding with an average of excellent. These research projects are assessed in details in the following sections of the report and the reader is advised to go through the individual team reports to get a good feel of their diversity and level of excellence. Given the expertise and previous achievements in LGDP it is expected that this lab should be able maintain its level of excellence in research. In this respect, the committee feels the major risks resides of not being able to accomplish the desirable research plan because of the lack of diversification of research funds. Indeed basic science oriented research on model plants may not achieve the required level of funding. Along these lines the committee and unit director have discussed on the possibility of attracting a new team. This possibility is now debated and the relative merits of choosing this solution rather than consolidating the teams which have already a low number of permanent staff are being weighted.



4 • Team-by-team analysis

Team 1 :

Stress-induced post-transcriptional reprogramming of plant gene expression

Name of team leader: Ms Cécile BOUSQUET-ANTONELLI

Workforce

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
N1: Permanent professors and similar positions	2	2
N2: Permanent EPST or EPIC researchers and similar positions	1	1
N3: Other permanent staff (without research duties)	2	2
N4: Other professors (PREM, ECC, etc.)		
N5: Other EPST or EPIC researchers (DREM, Postdoctoral students, visitors, etc.)		
N6: Other contractual staff (without research duties)	1	
TOTAL N1 to N6	6	5

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
Doctoral students	2	
Theses defended	2	
Postdoctoral students having spent at least 12 months in the unit		
Number of Research Supervisor Qualifications (HDR) taken	1	
Qualified research supervisors (with an HDR) or similar positions	2	2



• Detailed assessments

Assessment of scientific quality and outputs

This team is dedicated to the investigation of plant adaptation to stress, and in particular the study of post-transcriptional mechanisms by which plants modulate stress responses. The group largely focuses on *Arabidopsis thaliana* as its model organism. Its research directions for the previous period can generally be broken down into two sub-themes: the importance of Short Interspersed Elements (SINEs) in plant development and stress adaptation, and the importance of the LA-related proteins (LARPs) in post-transcription gene regulation, and in particular heat shock stress adaptation. The group has published 12 peer-reviewed, PubMed indexed research articles in the past five years, of which six can be attributed primarily to this team, all in journals ranging in quality between strong and excellent. For the SINE associated work, the main results of the team are: a) that SINE transcripts are capable of modulating biogenesis of endogenous miRNAs by engaging the miRNA processing machinery; b) that SINE transcripts can also affect stress responses in *Arabidopsis* by modulation the eIF2 α kinase GCN2; and c) that the loss of the possible SINE RNA effectors DRB2 and DRB4 affects accumulation of p4-siRNAs but not SINE RNAs. For the LARP associated work, the major results of the group are a) the compilation and classification of the various LARPs found throughout eukaryotes into five distinct families; b) the discovery that the LARP4 and LARP6 families have undergone a neofunctionalization process, conserved through evolution, by which members of these families do or do not engage the mRNA associated factor PABP; and c) the description of a massive, LARP1 associated mRNA decay process during heat stress.

Given the journals in which these manuscripts have been published, the contributions of this group as collaborating authors on other manuscripts in high ranking journals (i.e. Science, PLoS Genetics), and the impact these manuscripts have had in the field of RNA biology (see below), the scientific quality and output of this team must be viewed as excellent. The team has also contributed two book chapters and a congress report.

Assessment of the team's academic reputation and appeal

The team's published work has been received very favourably; manuscripts devoted both to the SINE and LARP research have been cited extensively despite their relatively recent publication (three manuscripts already cited >20 times). The team has been active in acquiring funding (two major ANR BLANC grants as well as other smaller competitive awards) and have assembled an impressive list of international collaborators. A note must be made with respect to their special contribution to the field of LARP research; at least two of their manuscripts (Bousquet-Antonelli and Deragon, 2009 and Merret et al., 2013) investigating the evolutionary conservation of this superfamily now form the lens through which the rest of the international LARP research community focuses their analyses. The group has presented extensively at international conferences, has hosted three international conferences in the past five years and has been a major player in the founding the international LARP society. The team's senior members hold academic leadership positions (President of the National Committee for Research Plant Science; Member of AERES evaluation team; Secretary to the LARP Society) and serve on an editorial board of an internationally recognized research publication (*Gene*). The PI (often) and the CR1 (more recently) participate in thesis committees, juries and HDR examinations. Hence the team's academic reputation and appeal can be considered as outstanding.

Assessment of the team's interaction with the social, economic and cultural environment

For this criterion the team's activities can be considered as good, but with the following comments: The group participated in an open letter debating the social merits of genetically modified foods and was a regular contributor toward the internship of elementary and high school students (four intern students in the past four years). They also participated every year in the University organized "Fête de la Science". The current team leader serves as the Permanent Policy Officer for the Université de Perpignan affected to Agropolis International and is a member of their board of directors. Concrete progress in the development of economically viable and/or industry partnered research directions were however not reported.

Assessment of the team's organisation and life

The team is currently composed of 5 permanent staff: One PRCE, one CR1, one MCF, one AI and one TC. The team also mentored/is mentoring three Ph.D. students and five M.Sc. students, as well as two post-doctoral fellows. The team has overcome the departure of one CR1 through mobility, and the directorship of the group will change in



2015. For its size, the group is quite productive and so it is to be considered that the organization of the group works well.

Assessment of the team's involvement in training through research

The team graduated two Ph.D. students between 2008-2013, and another Ph.D. is continuing in the group. This is a good level of training for a team with one HDR and one recently obtained HDR. The team has also trained five M.Sc. students and four elementary/high school students. All the Ph.D. and post-doctoral trainees (including the ones still in the group) have peer-reviewed publications (usually multiple) and so the record of training must be considered as very good.

Assessment of the strategy and the five-year plan

While the previous period featured research on both SINE and LARP biology, the future plan has dropped work on SINE biology and focuses exclusively on the LARPs. This thematic change is described in the research plan as being partly due to the departure of the CR1 in the previous period, and may also have to do with the transition of the directorship of the group due in 2015. The thematic change toward LARP1 mediated and heat-stress associated changes in plant gene regulation is also rooted in the group's forthcoming attempts to revitalize the urgency and relevance of their research program vis a vis the effects of global warming on crop production. The future research directions [i) other stresses affecting mRNA degradation; ii) molecular mechanisms of stress mediated mRNA decay; iii) study of *A. thaliana* LARP6] are well reasoned, utilize international collaborators effectively and will likely produce significant results. Critically, the group has very recently demonstrated (Merret et al., 2013, now published in *Cell Reports*) that they have productively moved their LARP work from the realm of the largely computational into the wet lab, where most of their future research directions lie. As the number of research themes pursued by this group in the previous period will thus be diminished in the new period, maintaining the previous level of productivity may be challenging, at least initially. Promising preliminary data, as described in the report, suggest that the new research directions are on the right track. Hence, the research project can be considered as very good to excellent.

Conclusion

- **Strengths and opportunities:**

Strong previous productivity, strong record of funding and topical and engaging future research directions are good predictors for future success.

- **Weaknesses and threats:**

Changes to the theme and research directions pursued in the previous period may result in challenges in maintaining the previous level of productivity.

- **Recommendations:**

Collaborations already established (siRNA biogenesis; LARP structure; stress associated signalling) will assist in future research directions; with such a high investment for the future period in stress mediated decay, further collaborations with researchers with expertise in the fields of stress mediated decay, P-bodies and stress granules (still an emerging field) may enhance the likelihood of success. Ph.D. and postdoc training levels need to be maintained. The continued framing of these research directions in the context of topics with high relevance to society (i.e. global warming) should increase likelihood of support. The team may want to consider HDR certification for the MCF to ensure a steady continuity of future Ph.D. allocations. The team is encouraged to explore research directions conducive to alternative funding sources (industry/private sector).



Team 2 : Transcriptional Gene Silencing and RNA silencing in plants

Name of team leader: Mr Thierry LAGRANGE

Workforce

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
N1: Permanent professors and similar positions	1	1
N2: Permanent EPST or EPIC researchers and similar positions	4	4
N3: Other permanent staff (without research duties)	2	2
N4: Other professors (PREM, ECC, etc.)		
N5: Other EPST or EPIC researchers (DREM, Postdoctoral students, visitors, etc.)		
N6: Other contractual staff (without research duties)		
TOTAL N1 to N6	7	7

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
Doctoral students	1	
Theses defended	1	
Postdoctoral students having spent at least 12 months in the team		
Number of Research Supervisor Qualifications (HDR) taken		
Qualified research supervisors (with an HDR) or similar positions	1	1



• Detailed assessments

Assessment of scientific quality and outputs

The team has made major contributions to the RNA silencing field, starting with the identification of two plant-specific RNA Polymerases required for RNA dependent DNA methylation (RdDM, Genes and Dev. 2005). Since then, this team made several seminal contributions, with probably the most important one in the recent past being the identification of a novel DNA methylation pathway that has been proposed to target newly acquired and potentially active genomic regions. This work has been published twice in Molecular Cell (2012), with the team being the main contributor of one publication and collaborator of the other publication. Another outstanding contribution published in collaboration with the group of Mr Olivier VOINNET was to show that the human prion protein binds to argonaute and is involved in loading of the RISC complex (published in Nature Structural Biology, 2011). Also in collaboration with the VOINNET group they could show that viral suppressors bind to AGO1 and inhibit its function (Genes and Dev. 2010). They also made substantial contributions to identify new RNA silencing factors, published in Genes and Dev. 2007 and EMBO Rep. 2009, and characterized the mode of action of RNA PolV (RNA Polymerase V), published in PNAS 2009. The CR1 and CR2 researchers of the team are first or co-authors of the publications with all of them being first author on at least one high profile publication. Still unpublished is their recent work revealing that there is an alternative RdDM pathway that depends on the presence of AGO hooks in PolV for silencing of defined classes of transposable elements. Also unpublished is their work on the functional analysis of the de novo DNA methyltransferase DRM2. Both projects promise to lead to well-recognized publications. This short summary reveals that the team has an outstanding scientific output, reflected by a high number of high profile publications (in journals like PNAS, EMBO Reports and Molecular Cell) that concentrate on the question of RNA silencing mechanisms in plants.

Assessment of the team's academic reputation and appeal

The team is collaborating with many outstanding laboratories in the epigenetics field, thereby attesting an excellent academic reputation and appeal. This has been recognized by the experts appointed by the Region Languedoc Roussillon that delivered a grant to the team leader as a “chercheur d’avenir confirmé” in 2010. In addition, the team could secure three ANR grants (2006-2015) as well as a grant from the National Cancer Institute. The team leader was nominated as member of the CNRS evaluation board, as well as a member of the AERES evaluation committee for the IBP and GreD. He furthermore serves as reviewer for prominent journals in the field of epigenetics.

Assessment of the team's interaction with the social, economic and cultural environment

The team has participated in the “La Fête de la Science” from 2008 till 2011 and initiated several short projects for high school students to introduce them to modern plant research. The team furthermore contributed two articles to popularize plant research for the general public. The team leader is frequently participating in thesis committees. Concrete progress in the development of economically viable and/or industry partnered research directions are not reported. Hence the team’s interaction with the social, economic and cultural environment can be considered as good.

Assessment of the team's organisation and life

The team is currently composed of 7 permanent people: 4 CNRS researchers (including PI), 2 CNRS AI and 1 PhD student. In addition there are 6 Master students. Each permanent researcher and PhD leads one project with the support of a technician/engineer or master student. Progress meetings are on a bi-weekly basis. Group members are also responsible for common platforms and stock managements.

Assessment of the team's involvement in training through research

The team had two PhD students between 2005 and 2013, a relatively low number in comparison to the other teams. In addition to that, the team currently has 6 master students. The team is furthermore organizing short research projects for high school students. Overall the involvement of the team in training can be considered very good.



Assessment of the strategy and the five-year plan

The team will focus in the next five years on three projects that are building on the results of ongoing research activities. In particular they will focus on the newly identified NERD silencing pathway and will, in collaboration with groups from the IBP (Institut de Biologie des Plantes) in Orsay, from the IJR (Institut Jean Roget) in Grenoble and from the Swiss Federal Institute of Technology in Zurich, dissect this pathway using genetics, molecular and biochemical tools. This project is supported by an ANR grant. A second focus will be on the characterization of the alternative RdDM pathway that depends on the presence of AGO (Argonaute) hooks in PolV. Also in this project (like in the first), the team plans forward genetic screening for mutants displaying altered silencing of a specific sensor. It is furthermore planned to continue the functional analysis of the *de novo* methyltransferase DRM2 and to characterize novel proteins containing an AGO hook domain. The experiments are logically designed and build on solid hypothesis and data. The team has established national and international collaborations with leading laboratories in the field (S. JACOBSEN, USA; O. VOINET, Switzerland; M.A. HAKIMI, France) who will support this research and by that increase the chance of success. Hence this research project can be considered outstanding.

Conclusion

▪ Strengths and opportunities:

Strong team with high scientific productivity and quality. The team is well connected to the scientific community and focuses on well-defined questions. The team has been very successful to attract national grants.

▪ Weaknesses and threats:

No specific risk or threat at present that would specifically affect this team. However, the team has only a low number of PhD students and postdocs, which is surprising given its very high scientific productivity.

▪ Recommendations:

The recruitment of PhD students and postdocs should be enforced. Applications to alternative funding sources than ANR are encouraged (like EU funding).



Team 3: Genome Analysis and Evolution

Name of team leader: Mr Olivier PANAUD and Mr Richard COOKE

Workforce

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
N1: Permanent professors and similar positions	3	3
N2: Permanent EPST or EPIC researchers and similar positions	1	
N3: Other permanent staff (without research duties)	2	2
N4: Other professors (PREM, ECC, etc.)		
N5: Other EPST or EPIC researchers (DREM, Postdoctoral students, visitors, etc.)	2	2
N6: Other contractual staff (without research duties)		
TOTAL N1 to N6	8	7

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
Doctoral students		
Theses defended	5	
Postdoctoral students having spent at least 12 months in the team		
Number of Research Supervisor Qualifications (HDR) taken		
Qualified research supervisors (with an HDR) or similar positions	3	2



• Detailed assessments

Assessment of scientific quality and outputs

The team is co-directed by two experienced colleagues, one of them being close to retirement (2015): the future of the team will then rest on the shoulders of the most junior one. It is a small team consisting of 6 (soon 5) permanent staff members (1 DR, 1 PR, 2 MC, 2 lab IT - 1 IE, 1 AI), all with a biology background, except for the IE who is a bioinformatician. For this 5 year period, 5 PhDs have been part of the team. There is a main take home message at the very beginning the team's report: the team has shifted his practice from mixed in silico+wet lab to bioinformatics. This is worth to be remembered and evaluated, as the current tendency is more on the opposite direction.

The theme of the team is plant genome analysis, with a historical special focus on Arabidopsis and rice. The emphasis is on genome structure with its two main driving forces: transposable elements & polyploidy. These two aspects reflect the interest of each co-director: TEs (Transposable Elements) for the junior PI, genome space for the more senior PI. As a result, this second aspect will be discontinued after his retirement in 2015. Seven main results are listed, the first four were under the junior PI leadership, the last three more related to the senior PI:

1. Impact of TEs on genome structure ;
2. Transpositional activity in the rice genome ;
3. Horizontal transfer of TEs ;
4. Annotation of TEs in genome projects ;
5. Impact of polyploidization on the evolution of gene space ;
6. Genome analysis of picroalgae and their viruses ;
7. Identification and characterization of AGO-hook proteins.

The work on the dynamic of TEs in *Oryza* is central in this activity with a novel and very interesting contribution on the detection of TE mobility and impact of TEs on genome size, all species included. It is indeed important to understand why some genomes are large and others not. Here we begin to have an answer on the timing of those events. What remains to be understood is what are the factors and mechanisms which allow or not TE invasion and maintenance which would control the species & strain variations in TE population. The horizontal transfer (HT) of TEs from one species to another one to escape death by species-specific silencing is a fruitful hypothesis and its testing is a promising aspect of the work of the team.

Due to its expertise on TEs, and the geographical proximity with Banyuls, team 3 has been involved in TE annotation in plants and green algae leading to 6 co-publications, the highest impact papers of the team and the whole lab.

This part of the work resulted in a total of 17 publications and 5 reviews for these 5 years. Out of these 17 there are 6 papers in major journals (3 *Plant J.*, 2 *GBE*, 1 *BMC EvolBiol*) in which the junior PI is the lead author and which therefore represent his own main scientific interests. The senior PI has played an important role in analyses on genome structure and polyploidization through the years and is still an important partner in collaborative projects on this topic with an obvious critical contribution today. It is also interesting to note that he is a co-author in many of the papers written in collaboration between different teams of the lab. We should not underestimate the importance of such colleagues which are often at the core of lab spirit and performance. It is thus hoped that his departure will be balanced by other people paying attention to the work of other teams, keeping lab spirit and cohesiveness. This part of the work ended up in 10 publications in which 3 as last author (1 *MBE*, 1 *NAR*, 1 *BMC EvolBiol*) and 2 reviews. As pointed out before, 6 out of these 10 publications are done in collaboration with other teams of the LGPDlab.

This is altogether an excellent to outstanding record of publication. It is noteworthy that the papers are almost all from the PIs and PhDs, the two MCFs contributing to very few publications, including reviews, and only once as first or lead author. These MCFs may be overloaded by teaching activity; nevertheless it is for the team and for their own sake a bit problematic that they are not more involved and productive in research.



Assessment of the team's academic reputation and appeal

The junior PI has international recognition in the field of TEs, more specifically on retrotransposons and he is well integrated in the genomics network on monocots. Although the senior PI has maybe a bit less international recognition, it is remarkable that part of the initial work on genome duplication and polyploidization has emerged from his team, and that this interest has migrated to other places with a net benefit for research in France and worldwide. This reputation translates in the number of ANRs in which the team is involved, as well as the integration of the junior PI as partner in international plant genomic initiatives and as a member of the International Oryza network. The junior PI has also given several oral presentations at different national and international symposia, meetings and workshops, several times as invited speaker as in the 9th Int. Plant Mol. Biol. Congress in St Louis in 2009.

The junior PI has also played an important role for UPVD, being Vice-President for research from 2008 to 2012 and being currently an elect member of its Scientific Council. He has been a member of two AERES French labs evaluation committees.

One may regret the lack of involvement of the team in any EU project, even as a simple participant. Also, it is to be noticed that no one in the team is member of the editorial board of a major scientific journal ("Rice" and "Frontiers in Plant Science" cannot be considered as major in this respect). In the same vein, the team PIs do not report either any involvement in committees evaluating international labs or projects, and not even in PhD thesis committees abroad. Altogether, this positions the team and its leaders among the excellent ones in term of reputation, but certainly not among the very best or exceptional.

Assessment of the team's interaction with the social, economic and cultural environment

The team's interaction with the social, economic and cultural environment can be considered as good but with the following comments:

The most important interactions of the group with the social and cultural environment was its participation to the scientific event "Fête de la Science".

There is a lack of interaction with any socio-economic partner, whatever the role in the economy or functioning of society (companies, institutions, public or private,...) which is by no way specific to this team but a general fact of for the whole LGDP lab. Many issues in the SWOT analysis have to be seen taking this "pure academic" behaviour into account.

Assessment of the team's organisation and life

This team is comparable in size with the other teams in the lab and is endowed with an adequate number of technical assistants. There is an efficient and nice working spirit in this team, as for the other teams in the unit. The two PIs supervised 5 PhD students, which is a pretty good number. Nevertheless, the MCFs are not mentioned in supervision and are involved in rather few publications.

Assessment of the team's involvement in training through research

Five PhD theses were defended in the last four years. The team shows also a good level of training at the Master degree. The team is involved in continuous education in bioinformatics for the whole unit. Hence this activity can be rated as very good.

Assessment of the strategy and the five-year plan

The perspectives of the team for the next five years are following two axis. First, investigating when transposition occurs in planta, during development and under external stimuli, namely stress. In terms of development, attention will be given to the germ line, to understand how genomic integrity will be kept, and on the existence of somatic diversity (TE load) as observed for humans. Response to stress will be investigated using natural populations, in a kind of evo-devo approach. Second, the investigation of HT of TEs will be continued, developing procedures to find it and searching it in wild plant populations. These proposals make sense given the background of the team and the current state of the art. They nevertheless involve experiments and sampling which remain costly



(by their number) and labor-intensive: here the project is depending on good will of collaborators. As whole, the research project can be rated as very good to excellent.

Conclusion

▪ Strengths and opportunities:

The team carries out basic research with a very good publication record. This was done through national and international collaborations as well as collaborations within the unit. Recognized expertise of the team leader in annotation of TEs allows co-publications in very high ranking journals. The proposed project builds on the expertise and knowledge of the group and offers new perspectives by looking into natural populations. It also fits with the will of the unit to focus on stresses. The team is well integrated into French and international networks which should allow maintaining and evening increase funding.

▪ Weaknesses and threats:

Weaknesses that could threaten this group include first the departure of one of the two PIs who was playing an important stimulating and guiding role for the whole unit. A second concern is the too low involvement of the MCFs in the team, both in publications and in mentoring PhD students. A third and important concern is the lack of funding outside of French public agencies, including EU and contracts with the socio-economic sector, which concerns both financial resources and recruitment of post-docs.

▪ Recommendations:

The team is encouraged to maintain high level scientific research activities through its current expertise in TEs and extend this expertise keeping in mind the possibility to exploit findings in an ecological and/or socio-economical context. It should stimulate MDCs to defend a HDR in order to make the team more attractive towards students and better share the mentoring, publication writing and fund raising load. Last, the team as a whole could likely be more aggressive in searching for more diverse and international sources of funding.



Team 4: Functions of redoxins in plant development and stress response

Name of team leader: Mr Jean-Philippe REICHEL

Workforce

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
N1: Permanent professors and similar positions	3	3
N2: Permanent EPST or EPIC researchers and similar positions	1	1
N3: Other permanent staff (without research duties)	2	1
N4: Other professors (PREM, ECC, etc.)		
N5: Other EPST or EPIC researchers (DREM, Postdoctoral students, visitors, etc.)	1	
N6: Other contractual staff (without research duties)	1	
TOTAL N1 to N6	8	5

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
Doctoral students	1	
Theses defended	4	
Postdoctoral students having spent at least 12 months in the team		
Number of Research Supervisor Qualifications (HDR) taken	1	
Qualified research supervisors (with an HDR) or similar positions	1	1



• Detailed assessments

Assessment of scientific quality and outputs

The team investigates the functions of thioredoxins and glutaredoxins in redox signalling, plant development and stress responses using reverse genetics approaches. The functions of distinct redoxins, located in either the nucleus, the cytosol or the organelles, have been studied within the group or in collaboration, showing their contribution to plant development, particularly in meristem development and hormone signalling. The characterization of mutants also demonstrated interplays between thioredoxin and glutaredoxin pathways.

In particular, during the past 5-year period, the team:

- showed the involvement of thiol reduction systems (TRX and glutathione) in meristematic activity and auxin signalling (Plant Cell 2010);
- showed the formation of a Fe-S center in the GrxC1 glutaredoxin and its function in oxidative stress sensing (Plant Cell Environ. 2012);
- contributed to the characterization of the backup function of the cytosolic TRX system in the reduction of glutathione (PNAS 2009).

Overall, their results have been published in 12 research papers, 6 reviews (including an Annual Review of Genetics in 2009) and a book chapter. They have been communicated in 5 national or international conferences. These outputs reflect a very good scientific quality of the team but with a relatively low number of publications. Nevertheless, as the other teams of the unit, the work is mainly published in journals of high rank, and benefited from fruitful collaborations.

Assessment of the team's academic reputation and appeal

The team has a large number (14) of French and foreign collaborators, attested by several collaborative papers during this time period. The team coordinated 1 ANR project (ANR Blanc Nucleoredox 2006-2010) and participated in 2 others. They also received fundings from the Agro Labex (2013-2014) and the PAI-ORCHID EGID program. The team's academic reputation as appeal on these grounds can be considered as very good.

The very good visibility of the team is also revealed by its involvement in the creation of the Thioredoxins and Glutaredoxins GDR2477 in 2002. Since then, they have been coordinating this GDR regrouping 14 French laboratories (including the organization of one GDR meeting/year). In this context the former PI and the current PI organized the "International Redoxin meeting" in Perpignan in 2009.

The group leader was co-editor of a Frontier in Plant Physiology topic (2013).

Assessment of the team's interaction with the social, economic and cultural environment

The team's interactions with the economic and cultural environment can be considered as good but with the following comments:

The team regularly participated in "Fête de la Science" and one lecturer of the team was in charge of the "Science Village" of Perpignan University every year since 2007. During that period, many elementary or high school students were initiated to research through short stays in the team.

Concrete progress in the development of economically viable and/or industry partnered research directions are however not reported.

Assessment of the team's organisation and life

Weekly group meetings are organized where research projects are presented and discussed. One member of the group is in charge of the transgenesis technological platform of the unit.



Assessment of the team's involvement in training through research

During the reporting period, the group has trained 3 Master students, 4 PhDs. All four PhD students who defended their thesis during the reporting period have published.

The PI was member of 6 thesis committees, “rapporteur” of 7 thesis and “examineur” of one.

Three members of the team are MCFs involved in teaching at the Perpignan University and one of them is coordinating a section of the Master 1 degree.

This type of activity can be rated as very good.

Assessment of the strategy and the five-year plan

The proposed project is mostly in continuation with the work carried out in the previous period. The group will aim at understanding how the cytosolic and nuclear thiol reduction systems modulate plant development in response to stresses. In particular, the team will study meristem activities and auxin signalling using the root as a model organ. Two main projects have been funded and will be performed during the next period: i) characterization of the crosstalk between thiol reduction systems and auxin pathways and its function in root development (funded by the Agropolis foundation), ii) characterization of the functions of redoxins in redox signalling (ANR Blanc “Cynthiol” coordinated by Graham Noctor). For the first project, forward and reverse genetics approaches together with real time redox status imaging techniques will be used. For the second project, reverse genetics will be coupled to omics (transcriptomics, proteomics, metabolomics) characterization of the mutants. The nucleoredoxin project is particularly original and they have little competition in this very interesting field.

The proposed strategy is coherent with previous approaches used by the group and can be rated as very good. The team is well integrated into French and international networks which should allow to maintain and even increase funding.

Conclusion

▪ Strengths and opportunities:

The team has a good record in the study of plant thioredoxins and glutaredoxins, using reverse genetics approaches. Taking into account that 3 members of the team have a rather heavy teaching load, the research is of very good level. The work plan for the next 5 years is feasible.

The research project linking redox signalling and development is original and in adequation with the expertise of the group and its collaborators.

▪ Weaknesses and threats:

The group is relatively small and includes 3 members with teaching duties. The numbers of PhD students and especially of post-docs are low.

Another possible threat would be the lack of success upon funding applications during the next contract. The remaining ANR project will end in 2016, the team has yet to secure additional funding.

Presently, the team’s future relies on collaborative projects coordinated by other teams.

▪ Recommendations:

The team is encouraged to maintain high level scientific research activities, to lead fruitful collaborations and to maintain effort in grant applications to national and international programs.



Team 5: The nucleolus and rRNA genes

Name of team leader: Mr Julio SÁEZ-VÁSQUEZ

Workforce

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
N1: Permanent professors and similar positions	1	1
N2: Permanent EPST or EPIC researchers and similar positions	2	2
N3: Other permanent staff (without research duties)	2	2
N4: Other professors (PREM, ECC, etc.)		
N5: Other EPST or EPIC researchers (DREM, Postdoctoral students, visitors, etc.)		
N6: Other contractual staff (without research duties)	1	1
TOTAL N1 to N6	6	6

Team workforce	Number as at 30/06/2013	Number as at 01/01/2015
Doctoral students	1	
Theses defended	1	
Postdoctoral students having spent at least 12 months in the team		
Number of Research Supervisor Qualifications (HDR) taken		
Qualified research supervisors (with an HDR) or similar positions	1	1



• Detailed assessments

Assessment of scientific quality and outputs

The research of the team is concentrated on cellular and molecular mechanisms taking place in the nucleolus in *Arabidopsis thaliana* but will concern also crosstalk events between the nucleolus and the nucleoplasm. This team has experienced, at the beginning of the current term, the departure of the previous PI. He had strong visibility as a former LGDP director and for the work he developed on snoRNA (small nucleolar RNA) metabolism in plants. Hence, the work on nucleolar small RNAs has disappeared since the end of 2010 and led to only one publication (Plant Physiol) among the six publications of the team during the 2008-2013 term. This particular situation induced the team to reorganize its scientific project and focus on a more restricted study of the function of the nucleolus.

The scientific interest has been centred on nucleolar gene expression around two major themes:

- i) characterization of the machinery involved in pre-rRNA maturation and in control of rDNA transcription;
- ii) organization and mechanisms for differential expression of rDNA genes.

Main results of the team include: i) Characterization of the protein composition of the U3 snoRNP, which is required for early co-transcriptional cleavages in the 5' ETS region of the 45S rRNA precursor. This work led to one publication in Plant Journal, but no functional study on the new identified components has been reported yet; ii) Identification of a protein (RTL2) belonging to the RNase III family of RNases and catalyzing the co-transcriptional cleavage at the 3'ETS of the precursor. This work was published in Nucleic Acids Research, and was continued in collaboration with two laboratories by studying members of this RTL family. One publication on this subject has been submitted; iii) Identification of polymorphisms within the multicopy 45S rRNA encoding genes and their classification in four variant groups. Implication of nucleolin for the differential expression of the rDNA genes was studied, leading to two publications (PloS Genetics, Nucleus), and one is in preparation. In addition, the leader participated to the writing of one chapter in a scientific book and two review articles.

The overall scientific quality and competence of the team is good but with a relatively low number of publications. Nevertheless, as for the other teams of the unit, the work is mainly published in journals of high rank, and benefited from fruitful collaborations.

Assessment of the team's academic reputation and appeal

The team's academic reputation and appeal has been assessed as very good to excellent. The team has indeed a very good visibility for its competence on the nucleolus in plant. This allowed its participation in two ANR projects as partner and allowed development of national collaborations. The PI of the team has maintained a productive and longstanding international collaboration on rDNA expression in *A. thaliana* with a strong team based in the US focusing on epigenetic phenomena, in particular nucleolar dominance. After obtaining his PhD in LGDP, the recently recruited CR2 was trained in this collaborating lab. Importantly, the team has enlarged its international and national collaborations towards laboratories working on nucleolar proteins in mammals.

The very good visibility is also revealed by several oral and poster presentations performed during international meetings and by the regular participation to thesis committees and juries. Nevertheless, the PI has had only one invitation for an international conference.

Assessment of the team's interaction with the social, economic and cultural environment

One of the most important interactions of the group with the social and cultural environment was their steady involvement for short internships of Elementary and High School students, and their participation to the scientific event "Fête de la Science".

The MCF of the group has a major involvement in the life of the university as a deputy-director of the UFR Sciences and the Biology Department.

Concrete progress in the development of economically viable and/or industry partnered research directions are however not reported and therefore the team's interaction with the social, economic and cultural environment can be rated as good.



Assessment of the team's organisation and life

The posted size of the team is equivalent to the other teams of the unit, but some staff appears not to be fully engaged in scientific production. The PhD students are only supervised by the PI. The MCF has not been involved as co-supervisor.

The team has overcome the departure of one of the two initial PIs. Recruitment of the CNRS CR2 has helped to consolidate the team and forced to focus the scientific orientation on topics where the team excels. This reveals a good sense for scientific strategy and insures good bases for the scientific development of the team.

Assessment of the team's involvement in training through research

One PhD thesis was defended in the last four years and one is on going, each with a good publication record. The team shows also a good level of training at the Master level. This indicates a very good activity in this respect.

Assessment of the strategy and the five-year plan

The objectives of the team are clear and well defined. The proposed project includes a logical follow up of the previous research in the field of stress sensing by the nucleolus and regulation of gene expression. Dynamic of rDNA chromatin structure under various conditions will represent one of the major themes. It will continue to benefit from past and recently established collaborations. The project includes exploration of an interesting new area of gene regulation. In particular, the team will investigate the potential role of the nucleolus to influence nuclear chromatin organization. Given the expertise of the CR2 in the approaches of fluorescence-activated sorting of nuclei and nucleoli, these innovative studies should provide interesting information. The conditions are favourable for the team to maintain and probably improve international competitiveness and scientific production. This will also contribute to maintain its attractiveness for PhD but also post-doc to carry out this very good to excellent research project.

Conclusion

- **Strengths and opportunities:**

The team carries out basic research with an average to good publication record. It was able to implement relevant collaborations outside the unit that helped publish their data in good to high-ranking journals. The proposed project builds on the technical expertise and knowledge of the group including a part of risk with the exploration of an interesting new hypothesis on gene regulation. Altogether, the project fits perfectly with the interests of the unit.

The CR2 researcher appears to be quite visible on the international scene and published articles in high ranking journals during his post-doctoral training. It represents a reinforcement of choice for the team.

The team obtained a significant level of financial support *via* national granting agencies. The leader has secured money for three years.

Hence the team has the potential to develop very strong and innovative science.

- **Weaknesses and threats:**

Weakness that could threaten this group include internal organization leading to a low record of scientific production. Willingness to publishing journal so high level is of course encouraged. But, the rate of publication over the five past years was quite low for some researchers of the team.

Another possible threat would be the lack of success in funding applications during the next contract. This would be a problem as the team has not yet developed relevant collaborations with other teams within the LGDP unit.

- **Recommendations:**

The team is encouraged to maintain high level scientific research activities, to support the young CR in the perspective to take Research Supervisor Qualification (HDR), to maintain effort in grant applications to national and international programs. The team is encouraged to explore research directions conducive to alternative funding sources (industry/private sector).



5 • Conduct of the visit

Visit dates:

Start: January 22, 2014, 20h

End: January 24, 2014, 14h

Visit site: LGDP Université de Perpignan

Institution: Université de Perpignan Via Domitia, CNRS

Address: 58 Avenue Paul Alduy, Perpignan

Specific premises visited

The members for the committee who stayed in the afternoon of Friday 25th could visit the laboratories and platforms.

Conduct or programme of visit

Thursday 23 January 2014

08h30 - 08h45	Welcome of Evaluation Committee (EC) members and AERES scientific delegate
08h45 - 09h00	Presentation of evaluation procedures and of members of the EC by the scientific delegate of AERES
09h00 - 09h45	Presentation of the LGDP past and future
09h45 - 10h20	Group "Stress-induced post-transcriptional reprogramming of plant gene expression"
10h20 - 11h00	Group "Transcriptional gene silencing and RNA silencing in plants"
11h30 - 12h05	Group "Genome analysis and evolution"
12h05 - 12h40	Group "Functions of redoxins in plant development and stress response" (presentation; discussion),
12h40 - 13h15	Group "Nucleolus and rRNA genes" (presentation; discussion),
14h00 - 16h00	EC meeting Review Board Meeting of ITA
16h00 - 16h30	Meeting with Doctoral School Head
16h30 - 17h30	Meeting with University and CNRS representatives
17h30 - 18h30	EC meeting Review Board



Friday 24 January 2014

08h15 - 08h35	Welcome of Evaluation Committee (EC) members and AERES scientific delegate
08h35 - 09h00	Meeting with technicians and engineers
09h00 - 09h25	Meeting with PhD students, post-docs and other non-permanent personnel
09h25 - 09h50	Meeting with researchers, professors and lecturers
10h00 - 10h25	Meeting with group leaders
10h25 - 10h50	Meeting with proposed director LGDP
10h50 - 13h00	EC meeting Review Board

Specific points to be mentioned

No problem for this evaluation, everything went very smoothly, the committee thanks LGDP for the excellent organization of the meeting and especially the technical staff and administrative staff who have facilitated our connections to hotel and transport facilities.



6 • Supervising bodies' general comments

La Présidence

Réf : 13-14/FL/XP/SC/ 063

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☎ 04.68.66.20.18

✉ president@univ-perp.fr✉ 52, avenue Paul Alduy
66860 Perpignan cedex

Perpignan, le 17 avril 2014.

Le Président de l'Université de Perpignan
Via Domitia

à

Monsieur le Président du comité AERES
aux Membres du comité d'expertise AERES**Objet : Réponse au rapport AERES S2PUR150008450 - LABORATOIRE GENOME ET DEVELOPPEMENT
DES PLANTES - 0660437S**Monsieur le Président,
Messieurs les membres du comité d'expertise,

En tant que cotutelle du Laboratoire Génome et Développement des Plantes (LGDP, UMR 5096 CNRS-UPVD), la Présidence de l'Université de Perpignan Via Domitia tient tout d'abord à indiquer combien elle a apprécié la composition et l'implication du comité de visite, la qualité des échanges sur des sujets tant scientifiques que plus administratifs ou structurels.

Dans le rapport remis par l'AERES, l'expertise des membres du comité a permis de souligner le niveau d'excellence tant scientifique qu'organisationnelle de ce laboratoire conclusions auxquelles s'associe pleinement l'établissement.

S'agissant des quelques points de vigilance indiqués dans ce rapport, les tutelles et l'unité, conscientes des enjeux uniront naturellement leurs efforts pour y remédier.

Concernant les interactions avec le monde socio-économique, la Plateforme TECNOVIV représente un outil stratégique clef de développement des relations avec les entreprises. En effet, ce dispositif mutualisé devrait permettre de structurer l'offre de recherche en offrant un point de rencontre incontournable pour l'ensemble des acteurs travaillant dans le domaine de l'analyse bio-environnementale tout en favorisant les rapprochements indispensables à la concrétisation de projets collaboratifs publics-privés. Couplé au projet local d'incubateur d'entreprises, cet outil devrait offrir aux sociétés en émergence dans ce domaine des prestations et une expertise uniques. Nous pensons à ce jour que ce dispositif devrait notamment accroître les relations du LGDP avec le monde socio-économique, c'est une des raisons pour lesquelles il a été priorisé dans le cadre des demandes de CPER en cours.

Pour ce qui relève des financements sur appels à projets, on notera que la politique d'ouverture du LGDP à d'autres modèles ainsi que la priorité donnée à l'étude des mécanismes de réponse des plantes aux stress induits par les changements climatiques (et donc plus généralement à l'environnement) pourraient lui permettre de se positionner sur des appels d'offres plus finalisés dans les années à venir. On notera aussi que dans le plan de stratégie national de la recherche exposé très récemment par le Ministère les 9 et 10 Avril 2014, les activités du laboratoire relèvent de deux des dix défis nationaux : « Gestion sobre des ressources et adaptation au changement climatique » et « Sécurité alimentaire et défi démographique ».

Enfin, l'organisation interne du laboratoire en équipes relève à notre sens d'une dynamique que nous souhaitons adaptative sans contrainte particulière de planification préalable. Ainsi, nous sommes confiant dans le fait que, fort d'une gouvernance remarquable, d'une grande motivation des personnels et d'une forte cohésion, les équipes définiront leurs priorités de recherche au mieux de leurs compétences et en adéquation avec leurs réseaux de collaborateurs de façon à continuer à produire une recherche de grande qualité dans les années à venir.

Je vous prie d'agréer, Monsieur le Président, Messieurs les membres du comité d'expertise, l'expression de mes salutations distinguées.

Fabrice LORENTE

A handwritten signature in blue ink, consisting of several fluid, overlapping loops and strokes, positioned to the right of the printed name.

Perpignan, April 15th 2014

AERES
Section des unités de recherche

We would first like to thank the AERES visiting committee for constructive discussions during their visit. We found committee recommendations very useful and we will certainly integrate them into our future laboratory policies and orientations. We are very pleased overall with the evaluation and agree with most of the conclusions. We have however two minor points we would like to address.

1. We feel that conclusions and recommendations of the different teams may suffer at some point of a lack of harmonization. For example, identical situations among several teams are sometime highlighted as weaknesses and threats in the conclusion of only a single team therefore creating a disparity in treatments. A clear example of this is the lack of EU contracts presented as a weakness for a single team although the situation is the same for all teams.
2. We collectively feel that team 5 was judged severely on its scientific quality and outputs (noted as "good") compared to the four other teams. This team was reorganized at the end of 2010 and its permanent personnel dropped from 5 to 3 at this point. At the end of 2012 the team was back to 5 permanent personnel but of course this reduction affected the overall productivity of the team. Despite this important restructuration, the team published 7 papers in good to very good journals (and not 6 as counted in the report, one publication on snRNAs with Manuel Echeverria as corresponding author, while he was still the team leader, was not taken into account, *Plant J* (2011) 65: 807-819). We are, however, very happy to observe that the team project was judged to be very good to excellent, an indication that the restructuration was successful.

Again, despite these two minor points, we consider that the AERES report is sound and representative of the LGDP situation.

Best wishes,



Pr. Jean-Marc Deragon
Directeur de l'UMR 5096



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Université de Perpignan Via Domitia

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