LGM - Génétique et microbiologie

Rapport Hcéres

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

Research Units Department

AERES report on Unit:

Dynamique des Génomes et Adaptation Microbienne

DynAMic

Under the supervision of the following institutions and research bodies:

Université de Lorraine

INRA MICA et EFPA

February 2012

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

Research Units Department

President of AERES

Didier Houssin

Research Units Department

Department Head

Pierre Glaudes

Unit

Name of unit:	Dynamique des Génomes et Adaptation Microbienne
Acronym of unit:	DynAMic
Label requested:	
Present no.:	UMR INRA1128
Name of Director (2009-2012):	Mr Pierre LEBLOND
Name of project leader (2013-2017):	Mr Pierre LEBLOND

Members of the committee of experts

Chair:	Mr Didier MAZEL, Paris
Experts:	Mr Fernando DE LA CRUZ, Santander, Spain
	Mr Paul DYSON, Swansea, UK
	Mr Marc FEUILLOLEY, Rouen (representative of the CNU)
	Ms Hildgund SCHREMPF, Osnabrück, Germany
	Ms Ariane TOUSSAINT, Bruxelles, Belgium
	Mr Patrick TRIEU-CUOT, Paris (representative of INRA CSS)

Representatives present during the visit

Scientific Delegate representing AERES:

Mr Jacques BARATTI

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

Ms Emmanuelle MAGUIN, INRA-MICA

Ms Nathalie BREDA , INRA-EFPA

Mr Pierre MUTZENHARDT, University of Lorraine

Report

1 • Introduction

Date and conduct of visit:

The expert committee visited the Laboratory on February 10, 2012. The site visit was conducted by a team of scientists with expertise in the scientific research areas of the 2 teams being evaluated. The meeting started with a presentation of the AERES evaluation process and of the committee members, followed by a brief presentation of the unit project by the unit director. Subsequently, each of the two team leaders presented the past activities and future projects. Experts also met, in separate committees, with representatives of: 1) researchers with permanent positions, 2) PhD students and postdoctoral fellows, 3) engineers, and technicians and administrative assistants. The committee also met with representatives of the University and INRA. A final meeting was held with the director. The site visit ended with the closed-door meeting of the committee.

History and geographical location of the unit, and overall description of its field and activities:

The laboratory is located on the University de Lorraine campus in Vandoeuvre Les Nancy (Faculté des Sciences et Technologies - Campus Aiguillettes). This research unit "Génétique et Microbiologie»" UMR UL-INRA 1128 has been under the directorship of Mr Pierre LEBLOND for the past 4 years, and consisted of 2 teams. The Unit is associated to INRA since 1995, but only hosts a limited number of INRA personal (1 single INRA researcher joined in 2006, and the single INRA technician left in 2007 and was not replaced). The scientific scopes of the research in the UMR deal with Gram-positive bacteria, focusing on two major bacterial groups, *Streptococcus* and *Streptomyces*. It is based on approaches that include molecular genetics, biochemistry, genomics and bioinformatics. The studied microorganisms are often model organisms of interest for fundamental research as well as for applications in food industry, health, and biotechnology.

Management team:

The unit directed by Pierre LEBLOND, Professor at UL, is organized in two teams: Team 1 is led by Ms Sophie PAYOT-LACROIX and Team 2 by Mr Pierre LEBLOND. This is a rather small unit and there is no other pyramidal organisation.

Unit workforce:

Workforce	**Number** on 06/30/2011	**Number** on 01/01/2013	2013-2017 **Number of producers****
N1: Professors or assistant professors	10 (4,4)	10 (4,9)	8
N2: EPST or EPIC researchers	1	1	1
N3: Other professors and researchers	0	0	0
N4: Engineers, technicians and administrative staff *on a permanent position	5 (2,14)	5 (2,14)	
N5: Engineers, technicians and administrative staff * on a non-permanent position	0		
N6: Postdoctoral students having spent at least 12 months in the unit	1		
N7: Doctoral students	8 (5,64)		
N8: PhD defended	6		
N9: Number of Habilitations to Direct Research (HDR) defended	2		
N10: People habilitated to direct research or similar	6	6	
TOTAL N1 to N7	**25 (14,18)**	**16 (8,04)**	**9**

* **If** different, indicate corresponding FTEs in brackets.

** Number of producers in the [01/01/2007-06/30/2011] period who will be present in 2013-2017.

2 • Assessment of the unit

Overall opinion on the unit:

Globally, the research carried out at the Unit can be qualified as good, especially taking into consideration the high teaching load of the staff. The Unit is clearly visible in the French research landscape in their corresponding fields of expertise. However, the committee noticed some heterogeneity in the performances of the two teams, though the quality and originality of their research were at international standard. This was in part due to the rather large number of different topics studied during the last term. The two teams have initiated to focus their research on a limited number of topics and to integrate these in the broader context of the research priorities of INRA departments MICA and EFPA The heterogeneity is particularly visible at the level of funding, as Team 1 only got limited funding during the last term (mostly from region Lorraine, University and INRA calls), furthermore, both teams have currently no ANR or EC funding. The proposed adjustments and reorientation (see above), might facilitate the Unit to access external funding, but the perimeters of the collaborative effort with the partner INRA labs will need to be precisely defined, especially for Team 1. Teaching is consuming a large part of the time of the unit personnel, but it should be mentioned that they have been very active and productive in this field; they have, for instance, set up a new master course in Microbiology for the UL.

Strengths and opportunities:

An evident strength is the relative youth of the staff members, which suggests that the backbone of the Unit will be stable, at least at medium term, allowing for the planning of projects on the long run. This Unit provides a concrete example of a valuable association between INRA and University to provide excellence in teaching, very good research and training of PhD students. During the last period, they trained 6 PhD students who found a position or became postdocs in foreign labs, and produced 23 publications in journals with good to high visibility. The different teams have been able to tie excellent national and international collaborations, giving them access to cutting-edge technologies and/or knowledge. They are already very well integrated in the Région Lorraine research and academic community, and the current fusion of the 4 regional universities into a single one potentially offers a better visibility of the Unit, and will likely offer access to additional core facilities.

Weaknesses and risks:

The major threat lies in the current limited external funding, especially in a context where all but one person are heavily involved in teaching. There are only 2 to 4 full time equivalents on each of the two projects and external funding should cover the salary of one full time post doc in each team, to guarantee the pace of project development and face competition. The second threat deals mostly with the fact that the Team 1 project is partly dependent on the data produced in an INRA team from Jouy en Josas, thus their interactions need to be more precisely defined. The committee did notice that there had been a real effort of reorganization in the projects presented, with the abandoning of certain projects and re-focusing on certain others; nevertheless, the risk of non-competitiveness in a few projects is real, especially with the start of new projects from little preliminary evidence (e.g. no demonstrated link between the presence of integrative conjugative elements (ICE**s)** and the pathogenicity of *S. salivarius*). As mentioned earlier, one general but common problem for staff-members at universities results from the heavy teaching load awhile there is a single full time researcher, hence, the recruitment of another full time researcher should be sought.

Recommendations:

The reorganisation proposed for the next term is certainly a good decision, as both teams will focus on fewer projects, centred on their established strengths, ICE and HGT in Streptococci, and genome plasticity and secondary metabolite production in Streptomyces. Parts of the Team 1 project should be better defined and work should be processive, starting by establishing the phenotype brought by the integrative and conjugative elements (ICEs), prior performing complex multispecies biofilm experiments. To reach their planned research-goals, Team 2 needs to strengthen the collaboration with researchers from other disciplines. The director is facing an important challenge with the current limited external funding, and securing funding should be his priority. The support of INRA to the unit is so far limited to a single permanent scientist; this is too little to expect a higher visibility. This is particularly important, as all the other people in the unit are university staff or graduate students who do not work full time on these competitive projects due to their teaching loads.

3 • Detailed assessments:

Assessment of scientific quality and production:

The team leaders are recognized experts in their fields. All together they published 23 publications in journal of good to high visibility (60% in top quartile), which is good for a unit with only 4.4 EFT on average over the evaluated period. They trained 8 PhDs and 6 are currently ongoing.

Assessment of the unit's integration into its environment:

They have excellent relationships with the university authorities (recently, they obtained the creation of a full professorship in the unit), and the INRA local correspondents support them. Despite the present lack of external financial support, reasonable external funding (EC and ANR) was secured during the evaluated period. The work they made on stambomycin production has led to a European patent.

Assessment of the research unit's reputation and drawing power:

They have been able to obtain two researchers on university assistant professor positions (2009 and 2010) and a promotion from assistant professor to professor They attracted and funded a good number of students for PhD and postdocs. They are well integrated in the different national networks in their fields, and have established appropriate collaborations with very good European labs, when necessary for their projects. One PhD student obtained the very competitive "Young researcher contract" from INRA.

Assessment of the unit's governance and life:

The Unit is rather small and the different types of personnel are satisfied with its functioning. All but one person are heavily involved in teaching, where they are very active. They are also collaborating with other INRA labs, locally and at the national level.

Assessment of the strategy and 5-year project:

The projects from both teams are focused on a limited number of questions, and the objectives should be attainable at medium term, so long as they will receive decent funding to support them. The project of Team 1 is rather linear and is in direct line with their past work, but, it will be applied to related *Streptococcus* species belonging to a different niche. Some new aspects planned by Team 2 are more risky, but the proposed approaches sound reasonable and likely more rewarding as the project deals with unanswered basic questions of *Streptomyces*, and one continued aspect has a good potential in terms of drug development

Assessment of the unit's involvement in training:

The major strength of the Unit is that their members are involved in teaching, from L1 to M2, and Master Pro, and they are very active in adjusting the proposed formations to the recent development in biology, and they have implemented novel teaching modules (i.e. bioinformatics and bioanalysis). They also created a Master in Microbiology with dual specialties (biotech and health). This additions should provoke to attract excellent students from UL. The doctoral students are fully integrated in the research projects and teaching obligations of the Unit, and are very satisfied with all aspects of the unit functioning. Former students either got positions in biotech companies, academic areas (researcher and engineers), or postdoc abroad.

4 • Team-by-team analysis

Team 1: Genome Plasticity and Mechanisms of Adaptation

Team leader: Ms Sophie PAYOT- LACROIX

Workforce

Workforce	**Number** on 06/30/2011	**Number** on 01/01/2013	2013-2017 **Number of producers****
N1: Professors or assistant professors	5 (1,9)	4 (1,9)	2
N2: EPST or EPIC researchers	1	1	1
N3: Other professors and researchers	0	0	0
N4: Engineers, technicians and administrative staff * on a permanent position	2,5 (1,27)	2,5 (1,27)	
N5: Engineers, technicians and administrative staff * on a non-permanent position	0		
N6: Postdoctoral students having spent at least 12 months in the unit	0		
N7: Doctoral students	5 (2,98)		
N8: PhD defended	2		
N9: Number of Habilitations to Direct Research (HDR) defended	1		
N10: People habilitated to direct research or similar	4	3	
TOTAL N1 to N7	**13,5 (7,15)**	**7,5 (4,17)**	**3**

* **If** different, indicate corresponding FTEs in brackets.

** Number of producers in the 2008-2011 period who will be present in 2013-2017.

• Detailed assessments

Assessment of scientific quality and production:

The team has a long-standing record in the study of integrative and conjugative elements (ICEs) in Gram-positive bacteria, and continued to exploit their "niche" of expertise by the further characterization of ICEs of streptococci. Particularly significant scientific findings are: 1) the demonstration of the ability of these elements to transfer by conjugation, 2) the discovery of more ICEs and related defective elements (CIMEs and IMEs) using bioinformatics methods to explore streptococci genomes and their evolution through horizontal gene transfer and 3) the demonstration that the tandem integration of CIMes and ICEs leads to the formation of new conjugative ICEs. During the past term they also brought to an end the studies they ran on the adaptive transcriptional regulators encoded by rgg genes and published these results.

Past production is good. They have published 14 papers in highly reputable microbiological journals, including J. Bacteriol., Mol. Microbiol., Appl. Environ. Microbiol. This is an acceptable level of publications, especially given the high level of teaching duties of most of the unit members.

Assessment of the research team's integration into its environment:

The research results are correctly valorised at the national level, by the participation in national networks and organization of scientific meetings, in teaching and communication with a larger public. Despite the existence of a reasonable number of national and international collaborations, the team seems however to have difficulties to ensure funding from other sources than Region Lorraine and intra INRA programs.. According to the report presented to the Evaluation Committee, the team largely relied on funding secured by Team 2 during part of the present evaluation term. Hence, this team should make an effort to attend more international meetings and secure more international collaborations. They have to dedicate more efforts to secure external financing by exploring both academic and industrial support.

Assessment of the research team's reputation and drawing power:

One member of the team was invited to give a talk at an international conference. Three PhD degrees have been awarded over this term, two of which were to students who originated from other French Universities. 3 PhD students are in the team rigth now, two of whom come from other French Universities. The team continues a collaboration with a British lab which provide an expertise in bacterial community present in the oral cavity.

Assessment of the strategy and 5-year project:

The project aims at integrating the team's research in the frame of an existing program at INRA (Biodiversity, evolution and pathogenicity, MICA department). By providing their know-how on ICE mining and analysis, the team is indeed in a good position to contribute an additional and original dimension to projects addressing the role of gene transfer in the transition from commensalism to pathogenicity in streptococcal oral species, in particular S. salivarius. Although the team should secure a local anchorage (presently envisaged as additional metagenomic analysis of strains isolated in French hospitals), in view of the small size of the team and its limited financial resources, it would appear appropriate to focus the project on exploiting the results and data accessible from ongoing high throughput sequencing efforts. Collaboration with the INRA MICALIS and GMPA teams should provide sufficiently large data sets to allow for the type of analysis envisaged (in silico mining for ICEs, CIMEs and IMEs in Streptococci of interest, building of a dedicated database and analysis of the spectrum of conjugative transfer in environments of increasing complexity). The rationale for focusing on ICE from S. salivarius is obvious, given the expertise of this team on the closely related species S. thermophilus. However, the collaboration on this subject between this team and that of Jouy-en-Josas was not clearly presented.

Conclusion:

- *Overall opinion on the team:*

The team is small, headed by a full time researcher but other team members are heavily involved in teaching and other educational tasks. The scientific production over the past 5 years was good (considering the small amount of financing available to the group) and with an involvement in national scientific activities, which is providing the scientists and the students with enough opportunities to interact with the scientific community.

- *Strengths and opportunities*

Strength is the excellent social atmosphere in the group. Students appreciate the equilibrium provided between freedom, strong advice and scientific discussion. Through ten years the team members have developed a specific know-how that should provide ample opportunity for productive collaborations and integration in ongoing large scale metagenomic projects. Given their expertise on ICE from *S. thermophilus*, this team should be rapidly productive on their new model organism *S. salivarius*.

- *Weaknesses and risks:*

The main weaknesses are the small size of the team and a lack of sufficient international visibility aside from the publications. As a result, the team has had great difficulty raising funding from the competitive ANR and EC programs, in recent years. This could clearly represent a middle term risk of failing to sustain the group, among a predictable growing competition.

- *Recommendations:*

Favour participation to international rather than national scientific events. Focus the project to elaborate a niche in large collaborative projects so as to thrive against competition. This should also contribute to securing external funding (which should be an absolute priority). Delineate precisely their contribution to the human oral microbiota project developed in Jouy-en-Josas.

Team 2: Chromosome Dynamics and Biosynthesis of Relevant Metabolites

Team leader: Mr Pierre LEBLOND

Workforce

Workforce	**Number** on 06/30/2011	**Number** on 01/01/2013	2013-2017 **Number of producers****
N1: Professors or assistant professors	5 (2,5)	6 (3)	6
N2: EPST or EPIC researchers	0	0	0
N3: Other professors and researchers	0	0	0
N4: Engineers, technicians and administrative staff * on a permanent position	2,5 (0,87)	2,5 (0,87)	
N5: Engineers, technicians and administrative staff * on a non-permanent position	0		
N6: Postdoctoral students having spent at least 12 months in the unit	1		
N7: Doctoral students	3 (2,66)		
N8: PhD defended	4		
N9: Number of Habilitations to Direct Research (HDR) defended	1		
N10: People habilitated to direct research or similar	2	3	
TOTAL N1 to N7	**11,5 (7,03)**	**8,5 (3,87)**	**6**

* **If** different, indicate corresponding FTEs in brackets.

** Number of producers in the 2008-2011 period who will be present in 2013-2017.

• Detailed assessments

Assessment of scientific quality and production:

For the period 2008-12, the research carried out by Team 2 of the unit has led to continued progress, especially considering the relatively small size of the group and the high teaching commitments of the staff. The Team exploited the genome sequence of *Streptomyces ambofaciens* to (a) develop novel genome mining tools to support research of gene-regulation; (b) deepen the general knowledge about the architecture and plasticity of the *Streptomyces* chromosome; and (c) exploit the potential of 'cryptic' antibiotic biosynthetic gene clusters to direct production of both known and novel bioactive compounds of potential medical use. These advances have been reported in several publications in journals of good to high impact and have led to the filing of a patent. All members of the team have made valuable contributions to these.

Assessment of the research team's integration into its environment, its reputation and drawing power:

During the evaluated period, the team has improved its position and standing in relation to international research on Streptomyces. This has been accomplished by attracting a good level of international/national funding and establishing and/or maintaining fruitful national and international scientific collaborations. Members of the Team gave invited talks and presentations at several of the most important international conferences in the field, as well as at different national meetings. Recruitment of young scientists (PhDs and postdocs) is good. The advances and infrastructure achieved within the period have provided an excellent environment for training young scientists (PhD's) and the record for completion of doctoral theses and subsequent employment of these scientists is very good.

The discovery of stambomycin, a potential high-value bioactive product of a 'cryptic' biosynthetic pathway, reported in PNAS by the team, was an important landmark in the area of *Streptomyces* research and drug discovery. This could/should have provided a springboard for the team to attract significant new external funding. However, as yet, the team's funding applications to exploit this advance have been unsuccessful.

Assessment of the strategy and 5-year project:

The 5-year plan is original and ambitious, designed to build on the advances and strengths of the team in 'chemical biology' allied to 'genome mining'. The planned strategy is to expand from the "Petri-dish" genomics to the soil ecosystem to align the team with INRA priorities, and to initiate collaborations with researchers from other disciplines, as well as with other INRA-funded projects in the local region; together with additional results, funding should be feasible The relevance and feasibility of short- to medium-term plans of several aspects are strong and there is good evidence that these investigations will lead to publications in leading scientific journals and the potential for new drug discovery. There is an element of risk-taking in that the medium- to long-term strategy is very dependent on good access to the expertise of collaborating chemists and joint studies with other disciplines (i.e. soil-sciences, forestry). Hopefully existing and novel collaborations will provide additional expertise, as the chemical biology of microbial signalling and secondary metabolite production is an increasingly competitive area, led by US groups exploiting in-house state-of-the-art mass spectrometry techniques.

Conclusion:

- *Overall opinion on the team:*

The team is small and each of its members is involved in teaching and other educational tasks. The scientific production over the past 5 years was very good, and the group has established appropriate external collaborations, both at national and European level, to achieve the highest possible benefit from their work. They have centred their projects on what are the strengths. The proposed project builds on the success of the previous period but extends to complementary dimensions, and has an interdisciplinarity outlook by engaging in new collaborations.

- *Strengths and opportunities:*

The good international standing of the team and its collaborative national and international links, based on competent scientific activities leading to high-impact outputs, are strengths to build upon and enhance the future recruitment of talented researchers. The expertise the team has developed, based primarily on genome-guided analysis of the biology of a single *Streptomyces* species grown in lab conditions, provides a good platform (although constrained by the a lack of multi-disciplinarity within the team) for the proposed plans of the next 5 years.

- *Weaknesses and risks:*

The self-evaluation alludes to areas of weakness impacting on research potential, namely the small size of the team, their commitment to teaching, and their relative geographical isolation making recruitment of staff a problem. To this, it should be added that the team is currently comprised of scientists with closely related skill sets.

- *Recommendations:*

While lack of different expertise in the group can be offset to a certain extent by collaboration with other groups, the team is encouraged to actively engage to raise funds to hire PhD(s)/ postdoc(s) with complementary skills. One very helpful strategy that should be entertained by INRA is to allocate a full-time technician to support the continuation of experimental work of the researchers while the motivated staff-members are engaged in teaching. This should lead to enhance the future success of the team and provide an improved environment for the training of young scientists.

5 • Grading

Once the visits for the 2011-2012 evaluation campaign had been completed, the chairpersons of the expert committees, who met per disciplinary group, proceeded to attribute a score to the research units in their group (and, when necessary, for these units' in-house teams).

This score (A+, A, B, C) concerned each of the four criteria defined by the AERES and was given along with an overall assessment.

With respect to this score, the research unit concerned by this report and its in-house teams received the overall assessment and the following grades:

Overall assessment of the unit **Laboratoire de Génétique et Microbiologie (LGM)** :

Unité dont la production, le rayonnement, l'organisation, l'animation et le projet sont très bons.

Grading table:

C1	C2	C3	C4
Scientific quality and production.	Reputation and drawing power, integration into the environment.	Laboratory life and governance.	Strategy and scientific project.
A	**A**	**A**	**A**

Overall assessment of the team LEBLOND-PAYOT-LACROIX :

Équipe dont la production est très bonne. Le rayonnement et le projet sont bons mais pourraient être améliorés.

Grading table:

C1	C2	C3	C4
Scientific quality and production.	Reputation and drawing power, integration into the environment.	Laboratory life and governance.	Strategy and scientific project.
A	**B**	**-**	**B**

Overall assessment of the team LEBLOND-LEBLOND :

Équipe dont la production, le rayonnement et le projet sont très bons.

Grading table:

C1	C2	C3	C4
Scientific quality and production.	Reputation and drawing power, integration into the environment.	Laboratory life and governance.	Strategy and scientific project.
A	**A**	**-**	**A**

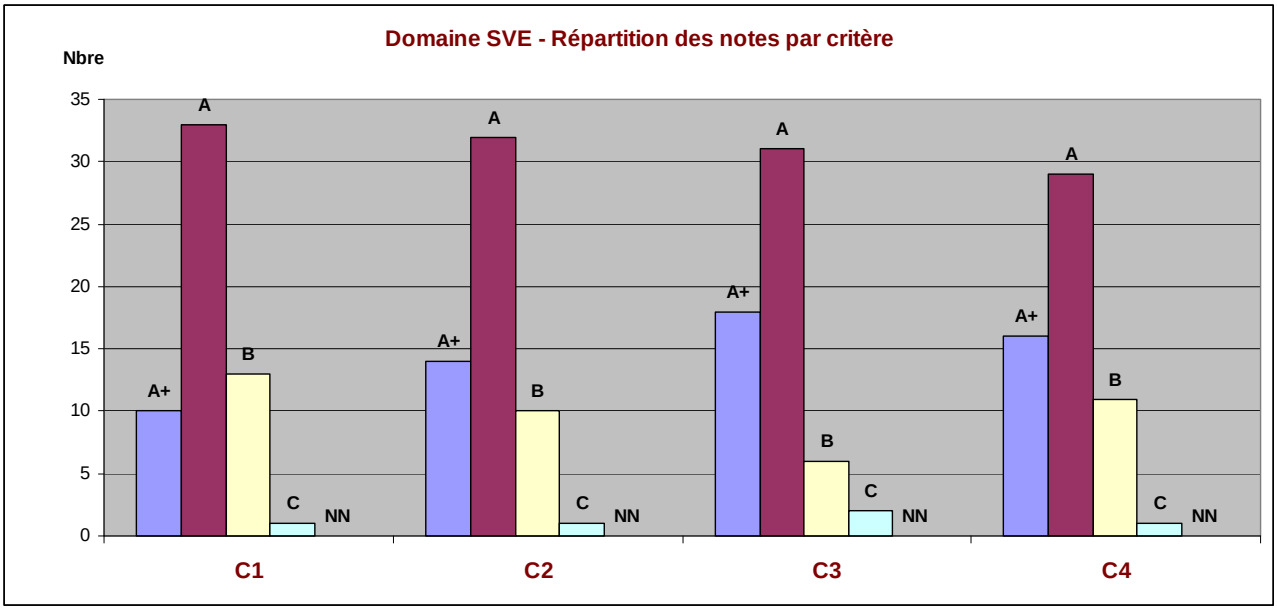
6 • Statistics per field

Notes

Critères	C1	C2	C3	C4
	Qualité scientifique et production	Rayonnement et attractivité, intégration dans l'environnement	Gouvernance et vie du laboratoire	Stratégie et projet scientifique
A+	10	14	18	16
A	33	32	31	29
B	13	10	6	11
C	1	1	2	1
Non noté	-	-	-	-

Pourcentages

Critères	C1	C2	C3	C4
	Qualité scientifique et production	Rayonnement et attractivité, intégration dans l'environnement	Gouvernance et vie du laboratoire	Stratégie et projet scientifique
A+	18%	25%	32%	28%
A	58%	56%	54%	51%
B	23%	18%	11%	19%
C	2%	2%	4%	2%
Non noté	-	-	-	-



7 • Supervising bodies' general comments

UNIVERSITÉ DE LORRAINE

Date 10/04/2012

L'Administrateur Provisoire
Jean-Pierre Finance

à

Monsieur Pierre GLAUDES
Directeur de la section des unités de l'AERES
20 rue Vivienne
75002 PARIS

Objet : rapport d'évaluation de l'UMR DynAMic
Référence du document : C2013-EV-0542493S-S2PUR130004661-RT

Monsieur le Directeur,

Vous m'avez transmis le 20 mars dernier le rapport d'évaluation de l'UMR « Dynamique des Génomes et Adaptation Microbienne (DynAMic) » et je vous en remercie.

Je vous prie de trouver ci-dessous les éléments de réponse de Monsieur P. Leblond, directeur de l'unité, ainsi que celle de Monsieur E. Dreyer au titre de l'INRA, établissement cotutelle de cette structure.

En tant que tutelle du laboratoire nous n'avons pas de remarque particulière à émettre sur le rapport du Comité d'évaluation. Nous prenons bonne note de ses recommandations qui nous semblent tout à fait recevables à ce jour.

Je vous prie d'agréer, cher collègue, l'expression de mes sentiments distingués.

L'Administrateur Provisoire

Jean-Pierre Finance

ADRESSE POSTALE
UNIVERSITE DE LORRAINE
34, COURS LEOPOLD – CS 25233
54052 NANCY CEDEX
EMAIL@UNIV-LORRAINE.FR
WWW.UNIV-LORRAINE.FR

Observations de E. Dreyer, Directeur du Centre INRA de Nancy

Réponse générale

Les unités soutenues par l'INRA en Lorraine (qui emploie 200 permanents et 100 contractuels) participent activement aux deux axes de recherche du pôle Agronomie, AgroAlimentaire, Forêts (A2F) de l'Université de Lorraine:

1. Un projet "Forêt Bois Territoires" avec comme 3ème partenaire AgroParisTech-Nancy. Si on y rajoute des équipes propres de l'INRA, des UMR INRA-AgroParisTech, et une unité de l'UL (le LERMAB sur le Bois Matériau, qui sera sans doute labellisée par l'INRA lors du prochain contrat), ces unités couvrent l'ensemble des compétences nécessaires pour aborder les questions qui se posent pour l'avenir de la filière forêt-bois: adaptation des forêts aux changements climatiques et de gestion, ajustements de la production aux besoins croissants, en bois matériau et en bois pour l'énergie, vulnérabilité et résilience aux contraintes de l'environnement, économie de la filière, identification et évaluation des services écosystémiques, etc. Ces questions requièrent la mobilisation d'une large gamme de disciplines. Cette forte complémentarité entre unités et cette participation à un projet collectif font la force de ce domaine de recherche en Lorraine, et ont permis la construction et le succès du projet de Labex "ARBRE" retenu lors du second appel à projets des PAI en février 2012 (lors des visites des comités).

2. Un axe de recherches sur l'"Ingénierie et Sécurité des Aliments" qui regroupe également un nombre important d'unités sur des thématiques d'importance pour plusieurs départements de l'INRA.

Certaines des unités comme le LGM (Dynamic) ou le LAE contribuent aux deux axes de recherches. Les autres sont plus spécifiquement actives dans l'un des deux. Les avis de l'AERES et les réponses apportées par les directions des unités feront l'objet de présentation et de réactions des départements de recherche impliqués : "Ecologie des Forêts, Prairies et Milieux Aquatiques", "Microbiologie et Chaine Alimentaire", Environnement et Agronomie", "Physiologie Animale et Santé des Elevages", "Alimentation humaine" qui sont les tutelles scientifiques INRA pour ces unités, et qui se prononceront sur les aspects de stratégie scientifique. La réponse présentée ici s'attache plus spécifiquement aux dynamiques locales entre unités. Les commissions de visite ont perçu ces enjeux et ont souligné les contributions des unités au projet collectif. De plus, les avis portés sur les différentes unités sont dans l'ensemble très positifs et nous ne pouvons que nous en féliciter.

Eléments concernant l'UMR 1128 « Laboratoire de Génétique Microbienne »

Cette unité deviendra "Dynamique des Génomes et Adaptation Microbienne-DynAMic)". La commission souligne la pertinence des choix scientifiques fait par cette petite unité et son dynamisme mais également le problème de masse critique dans chacune des deux équipes. Pour compenser partiellement cette faible masse critique est à rechercher dans le cadre dune coopération opérationnelle avec l'UMR IAM (sols forestiers) et sans doute également l'URAFPA. L'INRA appuie également via des moyens sous forme de bourses de thèses. Enfin, cette UMR peut s'appuyer sur les plateaux techniques existants, en particulier celui d'Ecogénomique.

ADRESSE POSTALE
UNIVERSITE DE LORRAINE
34, COURS LEOPOLD – CS 25233
54052 NANCY CEDEX
EMAIL@UNIV-LORRAINE.FR
WWW.UNIV-LORRAINE.FR

UNIVERSITÉ DE LORRAINE

VOLET GENERAL

We would like to thank the AERES committee for the very good scientific and human atmosphere established between the committee and the laboratory members during the visit of our Unit.
We are grateful to our committee composed of international research leaders for their positive evaluation of our scientific and teaching achievements, and for their support to apply for new permanent positions (INRA, Univ. Lorraine) to comfort our group and increase the visibility of our work.

We thank the AERES committee for their recommendations to both teams of the unit but we would also like to clarify several points:

▪ The positioning of the project of team 1 was questioned by the committee. The ambition is to capitalize our expertise on integrative and conjugative elements and related elements in streptococci to study gene transfers in the ecosystem, not only in the Petri dish. The "host bacteria" chosen is *S. salivarius,* as this species is present in two environments (oral and digestive) and includes commensal and pathogenic strains. Our project is being developed in coherence with the scientific theme *'From biodiversity to evolution and pathogenicity*' of the INRA department 'Microbiology and the Food Chain' (MICA) to whom our team depends and in agreement with its Department Chief. To initiate our project, we will bring our expertise on ICE and mobilizable elements to explore the diversity of these elements within oral and digestive metagenomic data provided by collaborating teams including the MICALIS unit. Our contribution will thus be complementary to their work. This positioning will offer us new funding opportunities through the development of a collaboration network.

▪ The lack of multidisciplinarity of team 2 was considered at risk. In the previous term, our strategy which proved to be efficient (collaborative funding and publications) was to develop synergies with soil ecologists and structural chemists. We will further complement our skills (molecular genetics) by the development of relevant collaborations, and amongst others, with INRA soil ecologists in order to fit with INRA priorities with the perspective to seal a partnership with the 'Forests, grasslands, aquatic environments' (EFPA) INRA dept.

Nancy, le 30 mars 2012

Pr. Pierre Leblond
Génétique & Microbiologie UMR INRA 1128
Université de Lorraine