



Génétique microbienne et environnement

Rapport Hcéres

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

Section des Unités de recherche

Evaluation report

Research unit

Génétique Microbienne & Environnement

National Institute for Agricultural
Research



March 2009



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Le Président
de l'AERES

Jean-François Dhainaut

Section des unités
de recherche

Le Directeur

Pierre Glorieux

March 2009



Evaluation report



The research unit :

Name of the research unit : Génétique Microbienne & Environnement

Requested label : UR

N° in case of renewal : 1249

Head of the research unit : M. Didier LERECLUS

Date of the visit :

December 2, 2008



Members of the visiting committee

Chairman of the committee :

M. Frederic BOCCARD, Centre de Génétique Moléculaire, Gif-sur-Yvette

Other committee members :

Ms. Cécile WANDERSMAN, Institut Pasteur, Paris

M. Brian D ROBERTSON, Imperial College, London

M. Roland BROSCHE, Institut Pasteur, Paris

Ms. Marie-Cécile PLOY, Faculté de Médecine, Limoges

INRA representative :

Ms. Christine CITTI, Toulouse

Observers

AERES scientific representative:

M. Stéphane MERESSE, CIML, Marseille

INRA representative:

Ms. Emmanuelle MAGUIN



Evaluation report

1 • Short presentation of the research unit

Total number of lab members : 19 including

- Researchers: 5 (3 DR and 2 CR)
- Postdoctoral fellows : 1
- PhD students: 4 all with a fellowship
- IATOS/ITA: 9

Number of publishing lab members: 5 out of 5

Number of HDR: 3

Number of students who have obtained their PhD during the past 4 years: 2

Average length of PhD during the past 4 years: 3 years

2 • Preparation and execution of the visit

The committee visited the unit on December 2nd. The report was sent to members of the committee by the head of the unit. The visit on site was properly organized. The director gave a general presentation of the unit in the presence of all members of GME. Four scientific talks describing the aspects of the work performed in the team were given by the four scientists leading the projects. After visiting the building of the unit, the committee discussed with scientific researchers, students, technical and administrative staff.

3 • Overall appreciation of the activity of the research unit, of its links with local, national and international partners

The overall project concerns interaction and adaptation to the host of bacteria belonging to the *B. cereus* group; four projects are developed. As indicated by the publication record, taking into account the size of the unit, the quality of science performed in the unit is good : 25 publications in international peer reviewed journals, including 13 papers in good journals in which the team was the main actor (Nucleic Acids Research (Impact Factor 6.9), Proteomics (IF 5.4), Molecular Microbiology (IF 5.4), J. Bacteriol. (IF 4.0), Appl. Environ. Microbiol. (IF 4.0), Microbes Infect. (IF 2.5), BMC Microbiol. (IF 2.9), PLoS ONE). The main approaches use genetics, proteomics and bioassays with insect larvae. The financial support is satisfactory and originates from INRA for about 2/3 and from external contracts for about 1/3.

The work of this team is recognized at the national and international levels as evidenced by different collaborations in France and abroad (with labs from Institut Pasteur in Paris, INRA Avignon, CBS from CNRS in Montpellier, University of Oklahoma USA, University of Oslo Norway, University of Aarhus) and citations of the publications of the team. The unit is coordinator of the CEREUS network that organizes a 2-days colloquium every year (network of 8 laboratories).



In the last four years, 4 different projects have been developed. The project dealing with adaptation of *B. cereus* to low temperature will not be continued in this unit and will be pursued by another INRA unit (Avignon). Efforts will be concentrated on the three other promising projects: Pathogenicity and virulence factors in the interaction with insect host, Interactions of *B. cereus* with eucaryotic cells, and Cellular communication and gene expression. The projects are already underway as revealed by recent publications. The required technologies for the achievement of the different projects are mastered in the unit. The description of the destruction of peritrophic membranes by Cry toxins is important, and this project should be reinforced to characterize the action of Cry proteins on these structures. The properties of *B. cereus*, a emerging pathogen for humans, may justify the analysis of its interaction with a mammal model.

5 • Appreciation of resources and of the life of the research unit

The team seems to be well managed and feedbacks from researchers, students and ITA members were quite positive.

The unit suffers from its actual relative loneliness as well as from the conditions of the building. The life of the unit should gain very much from moving to the new unit MICALIS (scientific animation, infrastructure supports, technological supports, proximity from other research groups...). The scientific researchers are quite positive about the move to MICALIS. Since the new MICALIS building will only be ready in 2011-2012, we recommend the unit to find a temporary settlement on the Jouy-en-Josas campus in the meantime.

5 • Recommendations and advice

– Strong points :

- The work of the unit is cohesive and of quality.
- The analysis of the interactions of *B. cereus* with insect models is appropriate.

– Weak points :

The unit is isolated and the building is in bad conditions.

– Recommendations :

- The unit should move to the Jouy-en-Josas campus as soon as possible.
- The emergence of *B. cereus* as a human opportunistic pathogen may justify the development of a mammalian host model, in addition to the insect model, for interaction studies.

Note de l'unité	Qualité scientifique et production	Rayonnement et attractivité, intégration dans l'environnement	Stratégie, gouvernance et vie du laboratoire	Appréciation du projet
A	A	A	A	A



**Unité Génétique Microbienne
et Environnement**

AERES

Objet : Observations de portée générale
sur le rapport d'évaluation de l'UR 1249

La Minière, le 26/03/2009

Nous apprécions l'avis donné par la Commission. Nous pouvons ajouter que depuis sa visite dans l'unité (le 2 décembre 2008) plusieurs approches impliquant un hôte mammifère ont déjà été entreprises avec succès.

Nous sommes tout à fait d'accord pour reconnaître que notre environnement de travail n'est pas idéal. Mais, comme l'indique la Commission, cela ne nous a pas empêché de produire un travail de qualité. Il ne nous paraît donc pas nécessairement pertinent de quitter précipitamment le domaine de La Minière si les conditions offertes sur un autre site ne sont pas excellentes.

Directeur de l'unité GME

Didier LERECLUS