GMGM - Génétique moléculaire, génomique et microbiologie

Rapport Hcéres

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

Research Units Department

AERES report on unit:

Génétique Moléculaire, Génomique, Microbiologie

GMGM

Under the supervision of the following institutions and research bodies:

University of Strasbourg

CNRS

January 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:	Génétique Moléculaire-Génomique-Microbiologie
Acronym of unit :	GMGM
Label requested :	UMR
Present no.:	UMR 7156
Name of Director (2009-2012):	Mr Serge POTIER
Name of project leader (2013-2017):	Mr Ivan TARASSOV

Members of the committee of experts

Chair :	Mr Frédéric BARRAS, Marseille
Experts :	Ms Chantal ASTIER, Gif-sur-Yvette (CNU representative)
	Ms Bianca COLONNA, Roma, Italy
	Mr Bertrand DAIGNAN-FORNIER, Bordeaux
	Ms Sylvie DEQUIN, Montpellier
	Mr Edward LOUIS, Nottingham, United Kingdom
	Mr Jean-Pierre ROUSSET, Orsay (CoNRS representative)

Representatives present during the visit

Scientific Delegate representing AERES:

Mr Jacques BARATTI

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

Ms Martine DEFAIS, CNRS

Mr Éric WESTHOF, University of Strasbourg

Report

1 • Introduction

Date and conduct of visit:

The visit lasted for one full day (January 25, 2012). The visit took place at the Ecole Doctorale Building. The committee listened to an overall presentation of the Unit, past and future, by I. Tarassov, the proposed Director for the 2013-2017 period. Each group leader gave a formal presentation in the presence of the whole staff. A poster session was organized during lunch time and posters were presented by PhD students and post-docs. At 4 p.m., the committee split in three and each sub-committee met with CNRS and University researchers, students and post-docs, and engineer-technicians-administrative agents, respectively. The president went through all three ongoing meetings. The committee subsequently met with the representatives of the Institutions (CNRS and University of Strasbourg). The next day, the committee met for discussion and deliberation, and split off at noon time on January 26th.

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

The Unit was created on January 1st 2005 as a UMR CNRS-Université Louis Pasteur by the merger of two CNRS FRE and this UMR 7156 was reconducted in 2009 as a UMR CNRS – Université de Strasbourg. It is organised into two departments, each hosted in different buildings at the Institut de Botanique and IPCB, (within about 10 minutes walking distance between them). The Department I (Microorganisms, Genomes, Environment) makes a great use of cutting-edge omics based technologies (genomic, proteomic, metabolomic, metagenomic) in complement to classical mostly genetic strategies. Model studied, environmental bacteria and yeast, are used to tackle questions related to stress, adaptation, biodiversity and genome evolution. The Dpt II (Molecular and Cellular Genetics) offers a more reductionist and mechanistic approach of intracellular macromolecular traffic, mostly in relation with mitochondria biology. The two Dpts include 3 teams each.

Management team:

Mr Ivan TARASSOV will replace Mr Serge Potier, Professor at the University of Strasbourg, as Director of the Unit. Mr Philippe BERTIN, Professor at the University of Strasbourg, will act as a vice-director.

Mr BERTIN and Mr TARASSOV will act as Head of Dpt I and II, respectively.

Unit workforce:

Workforce	**Number** on 06/30/2011	**Number** on 01/01/2013	2013-2017 **Number of producers****
N1: Professors or assistant professors	15	13	13
N2: EPST or EPIC researchers	6	7	6
N3: Other professors and researchers	0	1	
N4: Engineers, technicians and administrative staff ***on a permanent position	12,5	10,4	
N5: Engineers, technicians and administrative staff * on a non-permanent position	1		
N6: Postdoctoral students having spent at least 12 months in the unit	15		
N7: Doctoral students	12,5		
N8: PhD defended	20		
N9: Number of Habilitations to Direct Research (HDR) defended	2		
N10: People habilitated to direct research or similar	14	14	
TOTAL N1 to N7	**62**	**31,4**	**19**

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

** Number of producers in the 2008-2011 period who will be present in 2013-2017.
Definition and downloading of criteria:
http://www.aeres-evaluation.fr/Evaluation/Evaluation-des-unites-de-recherche/Principes-d-evaluation.

2 • Assessment of the unit

Overall opinion on the unit:

The Unit provides excellent science with a great expertise in genomic plasticity and evolution, environmental microbiology and mitochondria traffic. Creativity, originality and very good productivity are the hallmarks of this Unit as far as research is concerned. Exceptional investment in teaching and in the functioning of the University of Strasbourg is another hallmark.

Strengths and opportunities:

- The unit perfoms very good science.
- The research is original.
- Leaders are all quite young, in their 40s-50s. The unit has moved quite efficiently in the omics ages. A very good opportunity will be the Plan Campus which might allow the two departments to be reunited in a same building. This will very likely solve most daily problems and reinforce collaborations between departments.

Weaknesses and risks:

Scientific animation of the unit, and into the unit.

- Leader scientists are not involved enough in the life of the unit. The unit appeared to the committee more like an addition of talents but without much synergy between them.
- Need to organise joint seminars, journal clubs for (and by) students or any event that can facilitate scientific discussion and exchange between the two Dpts. Note that this was already the 5th recommendation of the previous committee.

Recommendations :

To propose a project that would be attractive enough for the University of Strasbourg and for the CNRS to launch the one-building scenario. The committee evidently leaves free the Director and the group leaders to think of any project that would fit their objectives and wills. However, it has appeared to this committee that reinforcing the bioinformatic/genomic aspect would happily complement the expertises of several teams present in the Unit while also help strengthening collaborations between teams and possibly Departments. Also, expertises that could help the two procaryotic groups to have a real connection with more applied expertises could be of interest. In any event, this is not the role of this committee to identify lines for the future and given the talents present in the Unit, the committee is confident about the future of the Unit, but urges the Unit to work on a common project, which will provide it with a real identity, a requirement to get support from institutions for the one-building project.

3 • Detailed assessments

Assessment of scientific quality and production:

The Unit has made several key contributions to our understanding of the microbial world in relation to its environment, to the deciphering of the molecular mechanisms underlying genome evolution in yeasts and to the richness and versatility of the mitochondria biology, especially in the way RNAs traffic from the cytosol to mitochondria. The Unit has developped great expertises in environmental microbiology, genetics, genomics and RNA biology and will soon acquire expertise in structural biology, which will undoubtedly enhance the level of science produced. Some of the researches made in the Unit have made actual breakthroughs (genome evolution by duplication/deletion, tRNA import in mitochondria, arsenic degradation in the wild).

The Unit has published over 100 papers, some in top journals such as Mol Cell (1), Am J Human Genet (2, in collaboration) Gene Dev (2), PLoS Genetics (2), and in most selective journals in the Genomic or Microbiology areas such as Genome Res., NAR, RNA, BMC Genomics, Mol Microbiol, J Bact, Appl Env Microbiol, Env Microbiol, Microbiology. A series of papers in PLoS One have also been published. Also, 20 PhD theses were defended.

Assessment of the unit's integration into its environment:

The unit appears well integrated in the Strasbourg area. The unit is well supported by the University of Strasbourg as indicated by the vice president of University of Strasbourg. The unit is very responsive to calls for proposals issued by the university. The unit has access to all platforms and facilities present within the Strasbourg area, both on the Esplanade and Illkirch campuses.

The unit is also highly visible for the CNRS which supported it quite well, both financially and in terms of humans ressources (4 ITA-CNRS were recruited in the period).

The unit is excellent in getting financial support from several sources (ANR, FRM, AFM, ADEME, GDR, Region, PICS), besides that obtained through the four years contractual agreement with the CNRS and the University. The overall amount of money the unit is able to raise is about 75% of the total unit budget (without counting the salaries), which put the unit in the top efficient French units in this regard.

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

The Unit has multiple connections with many laboratories in France, Russia, Japan, Great Britain, Spain, Switzerland, all of them financially supported. The contribution of the unit to the Genolevures consortium stands clearly as a major one, while connections of the team 4 with labs in Russia appears as a very efficient way to develop excellent collaborations. This is to cite a few only, as detailed collaborations will be described in reports on teams below. The arrivals of three researchers from the IBMC unit located in the vicinity, speaks for the attractivity of the GMGM unit in the Strasbourg area.

Assessment of the unit's governance and life:

A lack of "scientific life" between the teams and between the two departments was denounced by researchers, students and technicians. A related issue has already been raised by the previous review committee. This was responded to by the director, who listed a series of initiatives, such as weekly journal clubs/meeting within each team, monthly seminars into each department, and bi-monthly get-together of the two departments. Concluding to "a lack of scientific life" might therefore be a bit exaggerated, but clearly, as it stands, the "scientific life" does not respond to the staff and students expectations. The physical separation of the two departments certainly asks for more than the average. Very few "Conseil de Laboratoire" (2 ''conseils de laboratoire'' and 2 ''Assemblée Générale'' since december 2010) were reported too.

Conditions of work were also denounced as unacceptable (problems of all sorts typical of administrative French buildings from the 60's : heat problem, leaks, odors, elevators, etc…) but the committee did not actually visit the labs and these statements are exclusively based upon the comments gathered from the meetings with ITA, students/post-docs and researchers/assistant professors. Notice however that all three meetings were run independently and in parallel, and similar complaints were reported in all three sub-committees. The University of Strasbourg was apparently not informed.

As in many laboratories, the ITA regretted the lack of information regarding several aspects of their daily lives and about the criteria used for supporting candidates to promotion. This was already noticed by the previous review committee (6th recommendation). Without disputing this appreciation, the committee noticed however that many ITA have benefited from different promotions within the period under investigation, in particular 4 promotions to Assistant-Engineers, a well-known bottleneck in the ITA careers, were reported. This should be put on the former director's credit.

Assessment of the strategy and 5-year project:

It should be noted that each team has its own scientific plan for the coming years (see below). Several researchers are developing increasing links with biomedicine while others already benefit from connections with ecologists and chemists within the context of environmental issues. These strategies tending toward others discipline are to be encouraged but should also be carefully adapted to the own expertises and strengths of the Unit.

Assessment of the unit's involvement in training:

The involvement of the Unit in teaching is absolutely remarkable and well above the average. This is an obvious consequence of the high number of professors and assistant professors working in the unit (5 Professors and 8 MCF). This clearly contributed to the visibility of the unit and to its attractiveness to students (20 PhD thesis have been prepared and defended in the unit). Moreover, several of the professors have had important responsibilities both in administration and teaching duties at the University of Strasbourg. The Director in the previous term was Dean of the Faculty of Life Sciences, in charge of Masters as a Delegate vice president of the University of Strasbourg. He will now be in charge of the Ecole Doctorale in Life Sciences. Several scientists of the unit act at various levels in the academic life of the university : vice dean of the Faculty of Life Sciences since 2009. The professor in charge of a new interdisciplinary Master between Life Science and Chemistry, a scientist responsible of a « spécialité » in the Life and Sciences Master, finally a leadership position in the Departments of Molecular Biology, Genetics and Microbiology.

4 • Team-by-team analysis

Team 1 : Microbial adaptations and interactions in the environment

Team leader: Mr Stéphane VUILLEUMIER

Workforce

Workforce	Number on 06/30/2011	Number on 01/01/2013	2013-2017 Number of producers**
N1 : Professors or assistant professors	2	2	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	2	
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	2		
N8: PhD defended	3		
N9: Number of Habilitations to Direct Research (HDR) defended	0		
N10: People habilitated to direct research or similar	2	2	
TOTAL N1 to N7	**8**	**5**	**3**

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

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

Definition and downloading of criteria:
http://www.aeres-evaluation.fr/Evaluation/Evaluation-des-unites-de-recherche/Principes-d-evaluation.

• Detailed assessments

Assessment of scientific quality and production:

The research team is focused towards the understanding, from different standpoints, of the complex strategies bacteria have adopted to survive in the presence of organo-halogenated compounds of natural and industrial origin. By comparative and functional genomic analyses of halomethane degrading bacteria, the team has obtained novel and interesting results concerning the role (i) of mobile genetic elements in the evolution and dissemination of dehalogenase genes among diverse bacteria, and (ii) of core genome determinants in the adaptive response to dehalogenate compounds. The genomic approaches have been paralleled by genetic and molecular biology, using M. extorquens BMC or CM degrading strains as models. The team has strongly contributed to the genome annotation of several methylotrophic bacteria, as evidenced by several publications in the field. Recently, a new research line focused on environmental issues connected to the degradation of tetrachloromethane and halogenated herbicides has been activated with the support of a French network and of EU funding (Marie Curie ITN).

During the last four years the work was of good scientific quality, as confirmed by a relevant number of publications in very good journals in microbiology (J Bact, Environ Microbiol. Arch Microbiol, FEMS Microbiol Ecol), and about half of them with members of the team as first or last author. The high number of collaborative publications indicates that this group is deeply involved in international productive projects.

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

Locally the team is very well integrated via its involvement in teaching. The PI is now co-responsible for a Master between biology and chemistry. Nationally, the group is highly efficient in promoting collaborations with Genoscope. Internationally, the group is very well recognized as is taking part of a EU training network and of two other consortia (e.g. « Methanoscope » and « Methyloscope »). The activity of the group has benefited from multiple grants (local, national and international).

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

Members of the team have been actively involved in national and international scientific meetings. They have reached a good international reputation in their core research topic field on the degradation of the bacterial organohalogenated pollutants (chlorinated methanes) and in genomic analysis of methylotrophic and methanotrophic bacteria. The group has been able to attract several students of all levels, including 3 who eventually defended a PhD thesis.

Assessment of the strategy and 5-year project:

This group has a very well recognized expertise in the degradation of halogenated compounds and methylotrophic metabolism and they have developed tools (D-HPLC, T-RFLP for diversity analysis; anaerobic cultivation) for the research unit. Their aims logically follow and extend previous studies of the team members. However, during the last four years, the genomic approaches have open several new promising research lines and it should be necessary to focus on few scientific questions to develop projects adapted to the size of the group. Two of the three researchers have academic and heavy teaching responsibilities (PI included) and there are only one postdoc for one year and 2 PhD students to reinforce the group. The involvement in more applied research projects clearly demonstrates the choice of the team to make the acquired know-how available also for environment-targeted projects concerning the monitoring of emerging micropollutants. For this purpose, it should be necessary to develop more effective collaborations with industrial groups.

Conclusion :

Undoubtedly, the productivity and the recognized expertise in the degradation of halogenated compounds and methylotrophic metabolism of the team are high. The various approaches developed by the team are consistent with the aims of the project. However, it should be necessary to select only a few scientific questions to develop projects adapted to the size of the group and to succeed in the transition from comparative genomics to experimental functional genomics. The group's strategy has been largely influenced by the success to call proposals, which is perfectly understandable but might lead to a certain dispersion. A better balance between project-based research and basic question-driven research might lead to a better focus, and eventually help to get publications in higher impact journals.

Team 2 : Molecular Ecophysiology of Microorganisms.

Team leader: Mr Philippe BERTIN

Workforce

Workforce	**Number** on 06/30/2011	**Number** on 01/01/2013	2013-2017 **Number of producers****
N1 : Professors or assistant professors	4	4	4
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	1	2	
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	5		
N8: PhD defended	3		
N9: Number of Habilitations to Direct Research (HDR) defended	0		
N10: People habilitated to direct research or similar	3	3	
TOTAL N1 to N7	**11**	**6**	**4**

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

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

Definition and downloading of criteria:

http://www.aeres-evaluation.fr/Evaluation/Evaluation-des-unites-de-recherche/Principes-d-evaluation.

• Detailed assessments

Assessment of scientific quality and production:

The research activities of this group are centered on the responses of microrganisms and microbial communities to environment contaminants. In this context the group has made significant contributions concerning the adaptive strategies employed by several model organisms to survive and proliferate in the presence of arsenic. The team has set up innovative tools for meta- and protogenomic investigations on microbial communities which will lend themselves to promising applications in microbial ecology. Remarkably, the group's capacity to make efficient use of new technologies has been a complement to the group's excellent classic background both in terms of techniques (genetics, biochemistry) and strategy ("biological question-driven research"). Altogether, this have permitted highly original acquisitions about the dynamics of biofilm formation and about the temporal metabolic response of bacteria to arsenic compounds.

The scientific production is very good and continous over the time span considered. In particular, during the last four years the work has consistently attained high quality levels, as confirmed by a relevant number of publications in high IF journals (2 PLoS Genet) and best journals in the environmental microbiology field (Appl Environ Microbiol, Microbiol, ISME), mostly with members of the team as first or last author. The studies have been published also in journals aimed at a broader scientific audience.

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

The team is composed by very competent and dynamic scientists. The research aims logically follow and extend previous studies of the team members. Most group members have academic and heavy teaching responsibilities. The team represents a major scientific reference group for studies on functional genomics of arsenic oxidizing bacteria. The activity of the group has been supported by major national grants.

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

The group participates in a large multidisciplinary national network devoted to the metabolism of arsenic in microorganisms. Over the years, a very sound specific know-how has been acquired by the team. Members of the team have been actively involved in national and international scientific meetings and have reached an excellent international reputation in an emerging research field. The group has a very good capacity to attract young scientists: several PhD students are part of the team and recently a bioninformatic engineer has joined the group.

Assessment of the strategy and 5-year project:

The existing projects are original, new, well designed, relevant and feasible over the medium and long-term. The development of the project banks on a coherent background of consolidated acquisitions. The high scientific credibility of the proposed research draws upon the strong qualification of the team members. Several specific projects will be developed in order to study the diversity and the interplay of microbial communities in arsenic-contaminated environments. A relevant feature is the capacity to keep a strong focus on functional genomics while adopting post-genomic approaches.

Conclusion :

The quality of team is undoubtedly very high. As a whole the permanent staff of the team exhibits a varied and broad spectrum of scientific and technical competences. Moreover, there is a very convincing potential to creatively develop the project using advanced methodologies in a multidisciplinary collaborative effort. Particular attention should be paid to the optimization of the innovative "omics" approaches that the team is currently setting up.

Team 3 : Intraspecific variation and genome evolution

Team leader: Mr Joseph SCHACHERER

Workforce

Workforce	**Number** on 06/30/2011	**Number** on 01/01/2013	2013-2017 **Number of producers****
N1: Professors or assistant professors	8	5	5
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	3	0	
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	4		
N8: PhD defended	3		
N9: Number of Habilitations to Direct Research (HDR) defended	1		
N10: People habilitated to direct research or similar	4	3	
TOTAL N1 to N7	**16**	**5**	**5**

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

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

Definition and downloading of criteria:

http://www.aeres-evaluation.fr/Evaluation/Evaluation-des-unites-de-recherche/Principes-d-evaluation.

• Detailed assessments

Assessment of scientific quality and production:

The team is currently composed of 5 permanent staff with teaching duties (2 PR, 3 MCF), 1 post-doc and 1 PhD student. Several members of the team, including technicians from the past period, have left in the new configuration of the group since the last review. The focus of the team during the last period has been on comparative genomics among hemiascomycetes yeasts and the study of gene duplication and loss in Saccharomyces cerevisiae. The third theme on genetic and phenotypic diversity in Saccharomyces cerevisiae was initiated by the future team leader.The group has published several publications in specialty journals as well as s a major already highly cited contribution in Genome Research. Four PhD theses were defended.

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

The team is well integrated in the yeast community, through the Genolevure programm and the Dikaryome project. Two ANR BLANC and JC were obtained during the period of interest.

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

The role in leading the 'Genolevures' consortium brings visibility and attractivity to the team. Members are regularly invited to international meetings. One MCF was recruited during the period.

Assessment of the strategy and 5-year project:

This project on genotype-phenotype relationships for the next period is based on the highly successful post-doctoral work of the new team leader. The team is well funded to undertake the project, will recruit new researchers for the project and has excellent chances of success. The recruitment of good post-docs for these positions will be critical. The project is a new direction for the team and is composed of two main themes: genome wide association studies in S. cerevisiae with an emphasis on reproductive isolation and drug resistance, and linkage mapping of quantitative trait loci in a collection of strains from another species, Lachanceae kluyveri. The methods and approaches proposed are modern application of technology to old genetic problems with the development of new techniques such as microfluidic assays of growth in different conditions. The team is well composed with appropriate collaborations in place to successfully undertake the proposed research. Consequent funding has already been obtained to start the project.

Conclusion :

The team enters a transition period with a new young leader, who has already made several important contributions and is recognized as such in the community. In general the proposed project and team are well situated for successful and productive research in the area, having built different areas of expertise, in particular in bioinformatics. Nevertheless, the team leader should have in place a plan for a different approach and an alternative hypothesis in specific tracks in case the population structure of S. cerevisiae, for example is not amenable to general genome wide associations, or the hypothesis of generalisable gene incompatibilities being responsible for reproductive isolation rather than a consequence of divergence post-isolation being incorrect. As this team is in a transition period, success will also depend on the support of the Unit, particularly in terms of technical support.

Team 4 : Intracellular traffic of RNA and mitochondrial pathologies

Team leader: Ms Nina ENTELIS and Mr Ivan TARASSOV

Workforce

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

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

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

Definition and downloading of criteria:
http://www.aeres-evaluation.fr/Evaluation/Evaluation-des-unites-de-recherche/Principes-d-evaluation.

Detailed assessments

Assessment of scientific quality and production:

This team was co-directed during the evaluated period by two PI and will be co-directed in the same way in the future although one of the co-directors is changing (N. Entelis). It is currently composed of 3 permanent staff scientists (2 DR2 CNRS and 1 CR1 CNRS), 1 post-doc, 1 technician, 3 PhD students and 1 Master 2 student. One CR1 is expected to join the group in 2013. The team is studying the mechanisms of RNA import into the mitochondria, using two models: the yeast S. *cerevisiae* and human cells in culture. Their work led to the identification of several proteins acting as chaperone for tRNA import. Recently, the projects were broadened to the analysis of the import of the 5S rRNA, leading to the demonstration that 5S RNA is part of the mitoribosome. This is a major discovery in the field. The other projects of the group are aimed at studying mitochondrial pathologies or concern RNA import as a therapeutic tool.

In the 2007-2012 period, the group has published 15 research papers, of which 4 in very good specialty journals (5<IF<10) and 5 in high impact journals (IF>10). Among the latter, two (Mol. Cell 2007 and Genes & Dev 2011) are mainly contributed by the team and three result from collaborative work. This is an excellent scientific production considering the size of the team. Three PhD theses were defended during the period. Fundraising has been very successful.

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

The group has several collaborations both national and international levels. It is a funding partner and act as the coordinator of a LIA with Moscow University. Noticeable also, the group obtained the FRM label.

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

Members of the groups have been regularly invited in international meetings. The group has been very successful in raising funds during the evaluated period (two competitive ANR grant and FRM labels. The team appears attractive for PhD students and Post-docs.

Assessment of the strategy and 5-year project:

The projects for the 2013-2017 period of time are a direct continuation of ongoing studies. The main focus will be dedicated to understanding the mechanisms of RNA import in greater details and exploring the functional consequences. The function of 5S RNA in mitochondrial ribosome will be sought using structural and functional approaches through a very good collaboration. New strategies will also be developed for gene therapy projects and collaborations will be continued. Overall the projects are sound and this group has proved in the past that it can run in parallel highly fundamental and more medically oriented projects. The main strength of this group is the originality of the addressed questions. Human and financial resources appear adequate to ensure feasibility of the proposed projects.

Conclusion :

The team produces outstanding work by its creativity and the novelty of its findings. Productivity is remarkable given the size of the group. Its will is to put more efforts towards biomedical aspects is well sounded and the leader is keeping a good balance between first-class basic and mechanistic research and biomedical, mostly via collaborations, a strategy that is likely to be intellectually and financially rewarding.

Team 5 : Membrane trafficking and lipid signaling

Team leader: Ms Sylvie FRIANT

Workforce

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

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

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

Definition and downloading of criteria:
http://www.aeres-evaluation.fr/Evaluation/Evaluation-des-unites-de-recherche/Principes-d-evaluation.

• Detailed assessments

Assessment of scientific quality and production:

The team was set up in December 2005 with a CNRS-ATIP funding. There are currently 2 permanent CNRS staff (one CR1 and one IE2), 1 post-doc and 1 PhD student. Scientific objectives of the team concern the elucidation of molecular mechanisms involved in membrane trafficking (endocytose, Golgi lysosome) and lipid signalling, using S. cerevisiae as a model. The team has elucidated the role of various effectors of phosphosinositides or of enzymes involved in their turnover. Another achievement was to show the role of phosphoinositides and derivatives in the regulation of cell adaptation to stress acting on the cell wall. In another project, the team used yeast as a model for complementation studies with human phosphatase.

In the previous report on the team there was concern over lack of publications with the comment from the evaluation committee being "The only concern of the committee is that the team leader should be cautious about developing too many projects and collaborations at the same time, which may diminish the team's performance in a highly competitive environment." This concern appears to have been warranted as despite there being 3 publications submitted at the time (Feb 2008), none of these ended up published and there have been none since then, except for a recent one from a collaborator in which the team had a minor role. Two PhD students did defend their theses in this last period without publishing their results. The present expert committee shares the same concerns as the last one. Several factors including international competition and targeting of (too) high impact factor journals have contributed to the difficulties to publish. Five papers have been recently submitted, of which 3 are being revised before resubmission, similar to the situation at the last review.

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

Funding was successful (ATIP+, participation to one ANR Blanc project) in the previous period but there is currently no external funding outside the recurrent budget.

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

The team has developed several collaborations at the local and national levels.

Assessment of the strategy and 5-year project:

The project proposed for the next four years will (i) extend previous studies based on functional studies of human lipid phosphatases by heterologous expression in yeast (ii) study the links between membrane trafficking and signalling pathways involved in stress responses (iii) use its expertise in membrane trafficking to develop an in vivo synthetic evolutionary approach. Although the team leader is dynamic and there are good research ideas, the committee was not fully convinced about the relevance of some topics and fears that there are too many directions stemming from the core activities. For example the collaboration on a human protein associated with disease may be good but it is a side project where apparently the disease mutation is not fitting into the phosphatase pathway – therefore how is it helping with the core research of the team? There is a high risk of fragmentation.

Conclusion :

The team should focus on one theme that could lead very quickly to publications. The unit director should manage this situation to prevent another reoccurrence of an unproductive period. The committee urges the director to consider this situation very seriously, and encourages him to take any decision that could help solving the issues listed above.

Team 6 : Dynamics of the translation machinery nanomachines and metabolic crosstalks

Team leader: Mr Hubert BECKER

Workforce

Workforce	Number on 06/30/2011	Number on 01/01/2013	2013-2017 Number of producers**
N1: Professors or assistant professors	2	1	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	1	1	
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	4		
N8: PhD defended	2		
N9: Number of Habilitations to Direct Research (HDR) defended	0		
N10: People habilitated to direct research or similar	2	2	
TOTAL N1 to N7	**9**	**3**	**3**

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

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

Definition and downloading of criteria:
http://www.aeres-evaluation.fr/Evaluation/Evaluation-des-unites-de-recherche/Principes-d-evaluation.

• Detailed assessments

Assessment of scientific quality and production:

This is a new team who arrived in autumn 2011. Its members initially belonged to UMR 9002 (IBMC, Strasbourg). The team is composed of one professor (PR1, UdS), one CR1 CNRS, 1 PhD student and 1 post-doc.

Scientific objectives of the team concern the study of molecular edifices involved in the nucleus-mitochondria crosstalk. Recent results point to the role of Arc1 as a cytosolic anchoring platform for two tRNA synthetases, the synthesis of this platform being regulated when the cell shifts from fermentation to respiration. This discovery constitutes an important contribution to the field and establishes the basis for future studies.

The scientific productivity of the group leader in his previous laboratory was very good. Among the 12 research papers he published since 2007, 3 are in high impact journals (IF>10). Among the papers on the new projects, one appeared in "Genes and Dev." in 2009 and constitutes the root of future research. Two PhD students defended their thesis during the 2007-2011 period. The team leader has a number of teaching and administrative responsibilities, he will take the direction of the "Master of integrated Molecular and Cellular Biology".

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

The successful integration of this team into the unit should be facilitated by the existence of links already established, especially with team 4.

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

The team leader has been invited speaker in 2 international meetings. Fund raising was successful. The team leader has settled several international collaborations, in particular with a Japanese group having strong expertise in structural studies.

Assessment of the strategy and 5-year project:

The focus of this new team is on dynamics aspects of the translation machinery and the implication of protein complexes in intracellular metabolic crosstalk. Projects will develop in several directions: i) analyze the role of the cytosolic methionyl-tRNA synthetase as a transcription factor in the nucleus; ii) study the connection between tRNA trafficking and nutrient sensing; iii) analyze the human mitochondrial transamidation pathway; iv) identify other proteins that have a dual subcellular localization. The proposed research for the four next years is ambitious, well planned and well-structured and relies on solid foundations. It should allow to obtain the necessary manpower and financial resources.

Conclusion :

This new team will reinforce considerably the Unit. The team leader showed his ability to develop a well-focused, structured and efficient research, which allowed him to make already some ground breaking observations. The team will bring new expertises into the Unit (crystallography, structural biology). The existence of links between this team and team 4 calls for a smooth integration.

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 Génétique moléculaire génomique microbiologie :

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

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 TARASSOV- VUILLEURMIER :

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**

Overall assessment of the team TARASSOV- BERTIN :

Équipe dont la production et le rayonnement sont très bons. Le projet est excellent.

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+**

Overall assessment of the team TARASSOV- SOUCIET-SCHAECHERER :

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

Grading table:

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

Overall assessment of the team TARASSOV- ENTELIS :

Excellente équipe à tous points de vue.

Grading table:

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

Overall assessment of the team TARASSOV- FRIANT :

Équipe dont la production donne des résultats très insuffisants. Le rayonnement et le projet sont bons mais pourraient être améliorés.

Grading table:

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

Overall assessment of the team TARASSOV- BECKER :

Équipe non notée pour la production et le rayonnement dont le projet est excellent

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.
NN	**NN**	**-**	**A+**

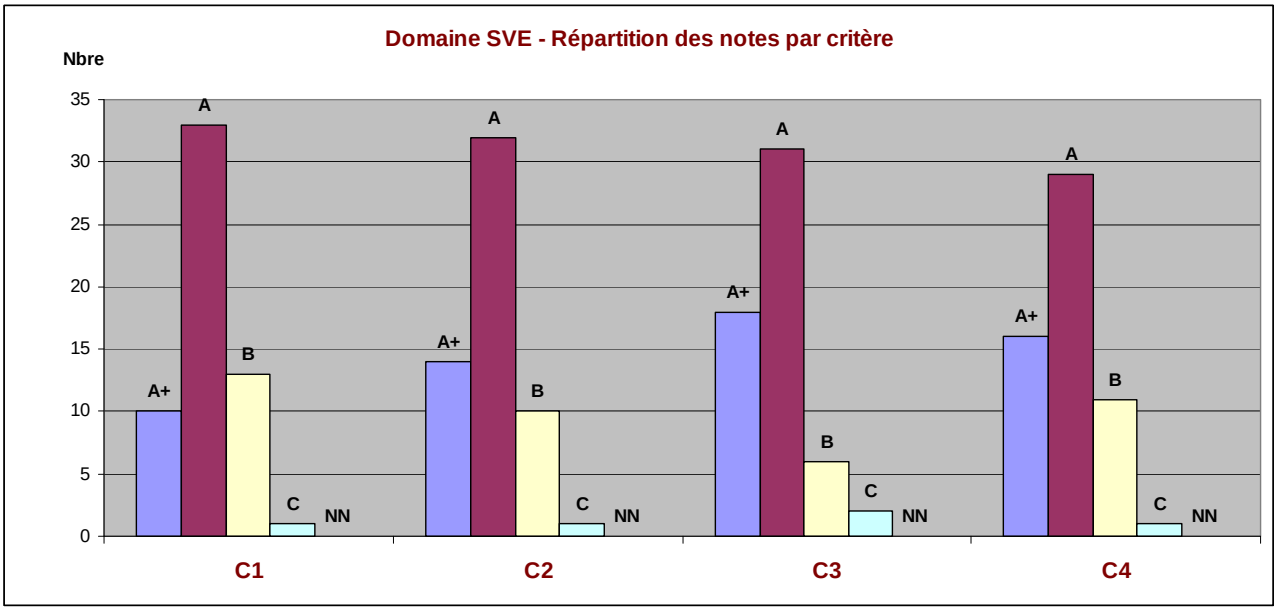
6 • Statistics per field

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 STRASBOURG

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Alain BERETZ
Président

Strasbourg, le 25 avril 2012

Objet : Rapport d'évaluation de l'UMR 7156 « Génétique moléculaire génomique microbiologie » (réf. S2PUR130004523-RT)
Réf. : AB/EW/N° 2012-202

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Direction de la recherche

Cher collègue,

Je vous remercie pour l'évaluation de l'unité mixte de recherche « Génétique moléculaire génomique microbiologie » (GMGM – UMR 7156) dirigée par Monsieur Serge Potier, puis par Monsieur Yvan Tarassov à compter du 1er janvier 2013.

Vous trouverez ci-joint les réponses du porteur de projet concernant les erreurs factuelles et les remarques et appréciations du comité d'experts.

Je n'ai pas de remarques particulière à ajouter au nom de l'Université.

Je vous prie d'agréer, Cher Collègue, l'expression de mes sentiments distingués.

Alain BERETZ

P.J. :

- **Une première partie corrigeant les erreurs factuelles**
- **Une seconde partie comprenant les observations de portée générale**

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UMR 7156 – Génétique moléculaire génomique microbiologie

2 - une partie qui comprendra les **observations de portée générale** sur le rapport d'évaluation

Detailed assessments

Page 6 : paragraph : "Assessment of the unit's governance and life":

Last part of the 2nd paragraph. Response : The Department in charge of safety and comfort in buildings of University of Strabourg was repeatedly informed and warned in different ways ("Document Unique" for long-term improvements, requests by e-mail, and by phone calls adressed to technical services regarding everyday problems).

p. 6, "The unit is excellent at getting financial support from several sources": We would also like the support obtained from FP7 to be mentioned in this context.

p. 7, We wish to comment on the two last sentences and would appreciate if they could be made clearer and more precise: Several scientists in the unit have responsibilities at various levels in the academic life of Université de Strasbourg, 4 of them acting as vice-dean of the Faculty of Life Sciences since 2009, or being in charge of the Master spécialités "Biologie des Micro-organismes", "Biologie Moléculaire et Cellulaire Intégrée", and "Chimie Biologie"(an interdisciplinary Master spécialité between Chemistry and Life Sciences), respectively.

Team-by-team analysis

Team 1.

p. 9, "the team has strongly contributed to the genome annotation of several methylotrophic bacteria":
Actually, the team coordinated and led annotation efforts for genome annotation of several methylotrophic bacteria, and will continue this activity in the future.

p. 9, "good quality, as confirmed by a relevant number of publications in very good journals in microbiology (J Bact, Environ Microbiol., Arch Microbiol, FEMS Ecol)": As mentioned above, we would appreciate if this statement could be corrected and made more precise. During the evaluation period, team 1 has contributed 36 of the almost 100 peer-reviewed publications produced by the UMR, many of which in high-ranking specialty journals in microbiology and environmental microbiology (Environ Microbiol, Appl Environ Microbiol, J Bact, FEMS Microbiol Ecol, such as already mentioned on p. 11 of the report), and one highly-cited article in PloS ONE.

p. 9, "Locally the team is very well integrated via its involvement in teaching": We would like to stress in this context that the team is also well-connected with regard to research with other CNRS units UPR 2357, UMR 7517 and UMR 7178 in Strasbourg, and with EA 3991 of UHA in Colmar, as witnessed by 2 ongoing PhD theses in co-supervision and 6 common publications since 2011.

p. 9, "Internationally, the group is very well recognized as is [sic] taking part of a EU training network and of two other consortia (e.g. "Methanoscope" and "Methyloscope")."

As already mentioned, due to its leadership in coordination of genome annotation, the team actually co-leads both "Methanoscope" and "Methyloscope" consortia, which strongly involve US American partners in addition to partners from Canada, Japan and 7 European countries.

p. 9, "the team has been able to attract several students of all levels, including 4 who eventually defended a PhD thesis".
As already mentioned above, 3 is the correct number of PhD theses defended in the team during the evaluation period. In addition, 4 students who obtained a Master degree in the team during the evaluation period went on for a PhD elsewhere in Strasbourg, in France or in Europe, and 2 of them have already obtained their PhD.

p. 9, "there are only one postdoc for one year and 2 PhD students to reinforce the group". This is potentially misleading. The postdoc was present in 2008 (and then went on maternity leave), 2 PhD students are currently in the group, but 3 other PhD students who obtained their PhD during the evaluation period, as well as many students (including 8 master 2 students) who performed research internships with the team, also contributed to team projects.

Team 3.

We are grateful to the reviewers for the advice concerning the fact that we should have in place a plan for alternative hypothesis in two specific tracks. However, we would like to mention that we already thought about alternative strategies, which were presented in the research proposal and discussed during the meeting. As an example, it is true that a clear-cut population structure was observed in *S. cerevisiae*, but this species as a whole is not structured. So, genome-wide association can be alternatively performed either on mixed-populations strains or isolates of a subpopulation. In addition, we also would like to mention that the research proposal of the team is far from being restricted to these two aspects (i.e. association studies and reproductive isolation). Indeed, we are also deeply interested and focus on population genomics i.e. on the exploration of the intraspecific genomic diversity.

Team 4.

We would like to stress that this team, along with the team 6, are involved in the LabEx ("Laboratoire d'Excellence, Programme national d'Investisements Avenir") assigned in 2012 for the next 8 years. This LabEx (acronym MitoCross) involves six teams of three neighbouring Strasbourg research units (UMR GMGM, UPR ARN, UPR IBMP) and its scientific manager is I. Tarassov, co-responsible of the team 4. The labex gathers leading teams working in mitochondrial field.

Team 6.

See the comment for team 4.