

FINAL RESUME OF THE EVALUATION ON THE RESEARCH UNIT:

Microbiology, Adaptation and
Pathogenesis Laboratory (MAP)

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

Centre national de la recherche
scientifique - CNRS

Institut national des sciences
appliquées de Lyon

Université Claude Bernard Lyon 1 -
UCBL

EVALUATION CAMPAIGN 2019-2020 GROUP A



In the name of Hcéres¹:

Nelly Dupin, Acting
President

In the name of the experts committee²:

Alain Filloux, Chairman of the committee

Under the decree No.2014-1365 dated 14 November 2014,

¹ The president of Hcéres "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5);

² The evaluation reports "are signed by the chairman of the experts committee". (Article 11, paragraph 2).

Tables in this document were filled with data submitted by the supervising body on behalf the unit.

UNIT PRESENTATION

Unit name:	Microbiology, Adaptation and Pathogenesis Laboratory
Unit acronym:	MAP
Current label and N°:	UMR 5240
ID RNSR:	200711907S
Application type:	Restructuration
Head of the unit (2019-2020):	Mr Henri William NASSER
Project leader (2021-2025):	Mr Henri William NASSER
Number of teams and/or themes:	5 project teams

EXPERTS COMMITTEE MEMBERS

Chair:	Mr Alain FILLoux, Imperial College London, United Kingdom
Experts:	Ms Geneviève BALL, CNRS, Marseille (supporting personnel)
	Ms Emmanuelle BOUVERET, CNRS, Paris (representative of CNRS)
	Ms Monica HOFTE, Ghent University, Belgium
	Mr Patrick LINDER, Université de Genève, Switzerland
	Ms Isabelle MARTIN-VERSTRAETE, Université Paris 7, Paris (representative of CNU)

HCÉRES REPRESENTATIVE

Mr Yacine GRABA

REPRESENTATIVES OF SUPERVISING BODIES

Ms Marie-Christine BAIETTO, INSA
 Ms Dominique MOUCHIROUD, UCBL
 Mr Christian MUCHARDT, CNRS

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The Unit was first created in 2007 and has a long history in developing scientific themes around the adaptation and evolution of microorganisms notably in the context of plant-microbe interactions. It is now distributed over three locations. Two of the occupied buildings are on the main la Doua campus in Villeurbanne, while other members of the unit are located in Lyon in the Centre of the main industrial partner BayerCropScience. In fact, one team of the unit is based in the Bayer Centre and that is the "Functional Genomics of Phytopathogenic Fungi" (FGPF). There have been many reorganisations of the themes and teams over the years and one main change that will be effective for the next contract period (2021-2025) will be the switch from 6 to 5 teams.

The unit is under the tutelage of three institutions, Université Claude Bernard Lyon (UCBL), CNRS and INSA. The unit was a member of the LabEx ECOFECT (2012-2020) and has since 2017 tight implications in the operations conducted within the Lyon University's Excellence initiative (IDEX).

Management team

The unit Director is currently William Nasser and he is candidate for leading the unit in the next contract with the support of the current laboratory council. The deputy director, Marc Lemaire, has also been proposed to continue over the period 2021-2025.

HCÉRES NOMENCLATURE

SVE 2 : Biologie cellulaire, biologie moléculaire, biochimie, génomique, biologique systémique, développement, biologie structurale.

THEMATICS

The MAP unit has a long-standing track record in studying many aspects of microbial adaptation, notably the interaction with the environment or in a host infection context particularly in the interaction with plants. The remit of the unit is broad since it includes the control of gene expression, the transport of molecules and macromolecules across membranes and the capacity of microorganisms to use these tools to respond to changing/hostile environment and adapt. These are naturally very timely questions and it is crucial to identify the appropriate model systems to maintain originality and visibility within the international context. Within MAP those model systems are many-fold and involve microorganisms across all kingdom of life, bacteria, archae and Eukaryotes (e.g., Amoeba, fungi). One historical organism studied in MAP is *Dickeyia dadantii* (previously Erwinia) which is a plant pathogen. This combined with the study of pathogenic fungi naturally led towards a very tight interaction with industrial partners versed in crop science, such as Bayer CropSciences with whom a perennial partnership seems to be in place including the physical location of the FGPF team within their premise. Overall there is thus plenty for the unit to develop excellent fundamental Science but also strong translational opportunities especially for Agriculture.

The molecular and organism models are spread within the 5/6 teams with sometimes permeability via either the scientific question or the model organism. The CRP team is mainly looking at gene expression in *Dickeyia*, the FGPF team looks at fungal pathogens-plant interaction, the M2E team studies archae and how they adapt to extreme environments and will include now also the amoeba model, the MTSB team uses *Dickeyia* and looks at bacterial envelope and trafficking, finally the SAMY team studies signalling in yeast and virulence of fungal pathogens (*Candida*).

UNIT WORKFORCE

Microbiology, Adaptation and Pathogenesis Laboratory		
Active staff	Number 06/30/2019	Number 01/01/2021
Full professors and similar positions	4	4
Assistant professors and similar positions	16	15
Full time research directors (Directeurs de recherche) and similar positions	6	5
Full time research associates (Chargés de recherche) and similar positions	1	1
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	0	0
High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	17	16
Permanent staff	44	41
Non-permanent professors and associate professors, including emeritus	0	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	1	
PhD Students	14	
Non-permanent supporting personnel	1	
Non-permanent staff	16	
Total	60	41

GLOBAL ASSESSMENT OF THE UNIT

This is a small size unit, currently 72 members in total including PhDs. MAP is organized in 6 teams which are led either by one or two PIs. There is thus a clear structure and also a clear scientific remit around the adaptation of microorganisms and their interaction with harsh environment and the host notably the plants. This has led to establish strong industrial connections and notably with Bayer Cropscience which is even hosting one of the teams (FGPF) in its premises. An emeritus MAP member has special recognition as being at the French Academy of Agriculture. The incentive towards translational research should not hide the main objective of MAP which is to develop cutting edge fundamental research. From this perspective the unit falls short to demonstrate excellence in its academic track record, notably by the lack of top-ranked publications and limited obtention of external funding such as ANR and ERC. The academic track record would also be improved if MAP members were taking further role in editorial board or evaluation committees. The MAP unit is split across three buildings and two locations. There is no indication that the scientific exchanges or social events do not work all across but this surely is to be carefully monitored since the unit is already small and being fully inclusive is essential.

One of the major problems to come is the recruitment of new young talents. This has not worked in the previous contract despite attempting recruiting 3 MAP members who did stay in the unit for periods of 1-2 years, significantly contributing to the output with some of the best publications, but not being successful in being recruited. The senior staff of the unit is aging and recruitment shall become a high priority.

MAP has an excellent implication in training, since members of MAP are co-director of the doctoral school or director of master programmes. Mentoring is excellent with almost all PhD students graduating by securing a 1st author publication.

MAP host a number of technical platforms though the platform on proteomics is going to close due to the departure of technical staff and their non-replacement. Whether platforms are useful when operational there are likely other options to perform such tasks as a service. Note that importantly the unit has access to the ENVIS platform from the FR in Lyon, and that provides multidisciplinary service from Microscopy to bioinformatics which is likely very precious. There are plans to open a new platform within Bayer CropScience for the engineering of recombinant mutant strains, but not sure that this is a bonus as compared to performing this type of work within the teams.

Finally, the parity across MAP is slightly unbalanced but more so when coming to the researcher staff as compared to the technical staff and also when coming to position of responsibility, as could be seen from the head of individual teams. The director and deputy director are both men and there is no reason not to consider a woman for the position of deputy since there is no requirement for this position be filled by a member having a DR or a Professor rank.

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