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MAP - Microbiologie, adaptation et pathogénie

Rapport Hcéres

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HCERES

High Council for the Evaluation of Research
and Higher Education

Research units

HCERES report on research unit:

Microbiology, Adaptation and Pathogenesis

MAP

Under the supervision of
the following institutions
and research bodies:

Université Claude Bernard Lyon 1 - UCB

Institut National des Sciences Appliquées de Lyon

Centre National de la Recherche Scientifique - CNRS

HCERES

High Council for the Evaluation of Research
and Higher Education

Research units

In the name of HCERES,¹

Didier HOUSSIN, president

In the name of the experts committee,²

Charles James DORMAN, chairman of the
committee

Under the decree N°2014-1365 dated 14 november 2014.

¹ The president of HCERES "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 expert committee". (Article 11, paragraph 2)

Evaluation report

This report is the result of the evaluation by the experts committee, the composition of which is specified below. The assessments contained herein are the expression of an independent and collegial deliberation of the committee.

Unit name:	Microbiology, Adaptation and Pathogenicity
Unit acronym:	MAP
Label requested:	UMR
Present no.:	UMR 5420
Name of Director (2014-2015):	Ms Nicole COTTE-PATTAT
Name of Project Leader (2016-2020):	Mr William NASSER

Expert committee members

Chair:	Mr Charles James DORMAN, Trinity College, University of Dublin, Ireland
Experts:	Mr Frédéric BARRAS, Aix-Marseille University (representative of the CoNRS) Ms Martine COLLART, University of Geneva Medical School, Switzerland Mr Antonio DI PIETRO, University of Córdoba, Spain Mr Pierre LEBLOND, University of Nancy (representative of the CNU)

Scientific delegate representing the HCERES:

Ms Catherine SCHUSTER

Representatives of the unit's supervising institutions and bodies:

Mr Fabrice CORDEY (representative of the Doctoral School N° 341)
Mr Denis FOUQUE, Université Claude Bernard Lyon 1
Mr Jean-François GERARD, INSA Lyon
Mr Domenico LIBBRI, CNRS
Mr Philippe PERRET, Bayer CropScience, Lyon

1 • Introduction

History and geographical location of the unit

The unit “Microbiologie, Adaptation & Pathogénie” (MAP), was created in 2007 and renewed in 2011 through the fusion of l’UMR2847, CNRS - Bayer CropScience, and l’UMR5122, CNRS-UCBL-INSA. MAP associates 4 partners CNRS, University Claude Bernard of Lyon 1 (UCBL), INSA Lyon, and the company Bayer CropScience. The 6 teams composing MAP are located on three sites: a main building (Lwoff, UCBL at the scientific Campus La Doua, Villeurbanne) and two satellite sites in the north of Lyon (Team 6, FungiPath, at the Bayer Research Centre at La Dargoire and Team 4, Amoeba, at the Pharmacy Faculty UCBL, Rockefeller Campus). Research interests at MAP are focused on molecular mechanisms of microorganism adaptation. MAP has been organized as six research teams in the previous 5-year contract (head N COTTE-PATTAT) and this structure will continue in the new contract period (head W NASSER) with the following modifications: The previous Team 1 will become “Membrane trafficking and signalling in bacteria”; Team 2 remains as “Chromatin and regulation of bacterial pathogenesis”; Team 3 is new and will be called “Adaptation in extreme environments” - the previous Team 3 (ATIPE Avenir team “Competence”) has divided with most of its former members relocating to the International Centre for Infection Research (its French designation: ‘CIRI’) in Lyon but will retain collaborative links with the new Team 4 (“Amoeba”); Team 5 remains in the new contract period as “Yeast molecular genetics” and Team 6 remains as “Functional genomics of phytopathogenic fungi”. MAP operates two technical platforms “Protéomique” cofinanced by the Bayer Research Centre at La Dargoire and the platform “Biomolécules”. MAP is also a partner of the Federation de Recherche (FR41) “BioEnvironnement et Santé”, composed of 5 platforms shared by of 7 research units of the site La Doua at Villeurbanne and a founder members of the LabEx ECOFECT.

Management team

Head: Ms Nicole COTTE-PATTAT

Deputy Head: Mr Christopher BRUEL

Head for the next contract: Mr William NASSER

Deputy Head for the next contract: Mr Christopher BRUEL

HCERES nomenclature

Principal: SVE1_LS6 Immunologie, microbiologie, virologie, parasitologie

Secondaire: SVE2_LS9 Biotechnologies, sciences environnementales, biologie synthétique, agronomie

SVE1_LS2 Génétique, génomique, bioinformatique

Unit workforce

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
N1: Permanent professors and similar positions	17	21
N2: Permanent researchers from Institutions and similar positions	8	8
N3: Other permanent staff (without research duties)	17 (14)	17 (14)
N4: Other professors (Emeritus Professor, on-contract Professor, etc.)	1	
N5: Other researchers (Emeritus Research Director, Postdoctoral students, visitors, etc.)	6	1
N6: Other contractual staff (without research duties)	5	3
TOTAL N1 to N6	54 (51)	50 (47)

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
Doctoral students	14	
Theses defended	32	
Postdoctoral students having spent at least 12 months in the unit	14	
Number of Research Supervisor Qualifications (HDR) taken	2	
Qualified research supervisors (with an HDR) or similar positions	14	17

2 • Overall assessment of the unit

Global assessment of the unit

MAP (Microbiology, Adaptation and Pathogenesis) is a well-integrated research unit consisting of six teams whose work collectively encompasses the three domains of life: archaea, bacteria and eukaryotes. The unifying research theme is molecular mechanisms of microorganism adaptation. MAP has a sound track record of scientific achievement with good research outputs and shows evidence of impact and having a high national and international reputation in a number of areas. It has a good governance structure showing evidence of sound management and forward planning, although vulnerabilities were detected in some areas. Although MAP is mainly publicly funded, it demonstrates an awareness of the importance of diversifying its sources of funding (EU programs, LabEx ECOFECT, ANR and private partners). Research at MAP is predominantly basic in nature but there is also evidence of translational research and a strong awareness of the importance of finding practical applications for the new knowledge discovered there, especially in the context of agriculture, the health of crop plants and environmental protection. MAP is making important contributions to advanced scientific training and education at masters, doctoral and postdoctoral levels and is also making significant contributions to the wider community through a number of

outreach schemes. Overall, this is a well-balanced research unit that uses its limited resources to good effect. Its successes reflect well on the leadership of MAP and on all of its staff. The unit has drafted a credible strategic plan that should allow it to build on its successes over the next five years.

Strengths and opportunities in relation to the context

MAP has significant strengths in molecular microbiological research in the context of environmental adaptation at both basic and applied levels. It is contributing to socioeconomic development nationally and is a provider of advanced scientific training and education. MAP has drafted a credible 5-year strategic plan that builds on its achievements, exploits overlaps between its research strands to generate coherence and aims to enhance its governance and scientific direction in the next 5-year period.

Weaknesses and threats related to the context

MAP has vulnerabilities in its financial support due to declining investment by the state, creating pressure to find alternative sources of income. One of its newly-created teams is particularly vulnerable from the perspective of scale and funding and is in need of careful attention. In addition, a second, new team is in need of careful mentoring as it establishes itself. MAP can become much more ambitious in its scientific planning, its funding planning and its recruitment strategy. At present, the profile of MAP is more strongly national than international in character.

Recommendations

1. Write and publish a mission statement for MAP that sets out clearly its purpose, its strategic goals and the means to be used to achieve these goals.
2. Retain those features of MAP that are strong and already bringing success: flexible research team structure with porous boundaries between teams; democratic system of governance; productive collaborative contacts with academia and industry; ambition to participate in events within the wider society.
3. Move immediately to identify the means to diversify MAP's research funding to include sources additional to national ones (e.g. Horizon 2020 programmes, ERC, EMBO, HFSP, etc.).
4. At the same time measures should be taken to make MAP a desirable research destination for high quality research staff from locations worldwide. This should include recruitment of high-performing research fellows supported by their own fellowships (from e.g. EMBO) who will add to the research capacity of MAP without becoming long-term members of its staff. The alumni of MAP can be among those enlisted in this task. Hire motivated postdocs by advertising vigorously internationally for new research staff.
5. The new scientific advisory board should be established as quickly as possible and include scientists from outside France to help MAP to make fully a transition to an internationally-oriented organization.
6. To set an appropriate atmosphere of research ambition for MAP, each Team should set itself the goal in the next 5-year contract of publishing at least one paper in a top-tier general science journal (*Nature*, *Science*, *Cell*, *PNAS* etc.).
7. Encourage all research staff to increase their international visibility and that of MAP by helping to organise, by speaking at and by chairing sessions at major international conferences, especially conferences held outside France.
8. Create a programme of regular visiting international speakers and advertise this through the MAP website.
9. Revise the unit's website, preferably using the services of a professional website designer, to make the site attractive to an international audience. The revised site should include the mission statement of MAP, complete descriptions of each Team's research (including colour figures and tables) in English as well as French. Biographical statements for at least the Team leaders should be presented on the website. A description of the seminar programme and seminar announcements should be provided and social media (Twitter, Facebook, LinkedIn etc.) exploited where appropriate to broadcast MAP's news and to establish a vibrant presence on the internet. Include on the website information suitable for an international audience on PhD opportunities at MAP (this should include a clear description of the PhD programme with information for prospective students about mentoring, course-work, milestones, transferable skills, thesis defence, thesis committee system).