

FINAL RESUME ON THE RESEARCH UNIT
MFP - Laboratoire Microbiologie Fondamentale et
Pathogénicité

UNDER THE SUPERVISION OF THE
FOLLOWING INSTITUTIONS AND RESEARCH
BODIES:

Université de Bordeaux

Centre National de la Recherche Scientifique - CNRS

EVALUATION CAMPAIGN 2020-2021
GROUP B



In the name of Hcéres¹:

Mr Thierry Coulhon, president

In the name of the experts committee²:

Ms Anne-Geneviève Marcelin, Chairwoman 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 certified data submitted by the supervising body on behalf of the unit.

UNIT PRESENTATION

Unit name:

Microbiologie Fondamentale et Pathogénicité

Unit acronym:

MFP

Current label and N°:

UMR 5234

ID RNSR:

200711901K

Application type:

Fusion, scission, restructuring

Head of the unit (2020-2021):

Mr Frédéric Bringaud

Project leader (2021-2025):

Mr Frédéric Bringaud

Number of teams:

9

EXPERTS COMMITTEE MEMBERS

Chair:

Ms Anne-Geneviève Marcelin, Sorbonne université, Paris

Experts:

Mr Djamel Drider, Université de Lille (representative of CNU)

Mr Mathias Faure, Université de Lyon

Mr Torsten Ochsenreiter, University of Bern, Switzerland

Mr Olivier Reynard, INSERM, Lyon (supporting personnel)

Mr Boualem Sendid, Université Lille

Ms Agathe Subtil, CNRS, Paris

Ms Catherine Venien-Bryan, Université Pierre et Marie Curie

Mr Kai Wengelnik, INSERM, Montpellier (representative of CoNRS)

HCÉRES REPRESENTATIVE

Mr Théophile Ohlmann

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Ms Karine Argento, INSERM

Ms Katia Boniface, Université de Bordeaux

Ms Marie-France Delauw, CNRS

Mr Alain-Pierre Gadeau, Université de Bordeaux

Ms Sylvie Guerder, CNRS

Ms Younis Hermes, INSERM

Mr Philippe Moretto, Université de Bordeaux

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The "Microbiologie Fondamentale et Pathogénicité" Laboratory (MFP) is a research unit that depends on the Bordeaux University (BU) department Biological and Medical Sciences (BMS) and the CNRS "section 27". MFP was founded in 2006 under the name of "Microbiologie Cellulaire et Moléculaire et Pathogénicité" (MCMP - UMR 5234). In 2011, the EA 2968 "Variabilité Génomique des Virus" joined the MCMP. Then, three teams joined MFP in 2015, 2016 and 2020. The laboratory is presently composed of seven teams (T1 to T7) and is distributed over two sites of the BU: three buildings of the Carreire campus in Bordeaux (Team 1, Team 2, Team 5-Team 7) and the "Institut Européen de Chimie et Biochimie" (IECB) in Pessac (Team 3 and Team 4).

RESEARCH ECOSYSTEM

Biological and Medical Sciences (BMS) is one of the eleven departments of research of the Bordeaux University (BU).

The unit "Microbiologie Fondamentale et Pathogénicité" (MFP) is one of the nine UMR of BMS. It brings together the teams from BU that work in the large field of medical microbiology (i.e., virology, bacteriology, parasitology and mycology). Two MFP teams are located at the Institut Européen de Chimie et Biologie (IECB). In addition, MFP teams have established strong interaction with the microbiology laboratories of the BU Hospital.

Team 1 of MFP manages the only one BSL3 laboratory at the BU, an essential research environment, particularly in the context of the current pandemic. A member of Team 1 is also coordinating the WHO reference center for HIV resistance harboured in Bordeaux CHU Hospital, Pôle de Biologie Pathologie. Team 4 significantly contributed to the installation at IECB of the new platform of cryo-electron microscope (CryoEM). Team 7 team leader is the scientific and technical director of the LabEx ParaFrap (internationally recognized Parasitology research network). Team 1 and Team 2 participated to the foundation of the "Laboratoire International Associé" (LIA), with the Heinrich Pette Institute (Germany). The recent successful application of MFP, as partner, to the EquipEx call will allow to implement advanced Correlative Light and EM (CLEM). If combined with an ambitious research project, this acquisition should put BU at the forefront of imaging technology at the international level. MFP was also very pro-active in the response to the "Grands Programmes de Recherche", and in particular to the "Frontiers of Life" project. Finally, several of the teams have interacted in the last few years with the "Cellule de Transfert - Aquitaine Microbiologie" to establish contact and develop interactions with industrial partners.

HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

The general objective of MFP is to increase the scientific and basic understanding of host-pathogen interactions linked to replication and disease development with the ultimate goal as the comprehension of the consequences of molecular interactions on higher levels up to epidemiology, innovative therapeutic approaches and development of cutting-edge tools and new technologies.

Research topics are focused on five main viruses (HIV, PFV, HBV, adenoviruses, SARS-CoV-2), mobile elements and nanomachines of bacteria, trypanosomatids, *Toxoplasma gondii* and *Candida* species.

MANAGEMENT TEAM

Director: Mr Frédéric Bringaud

Deputy directors: Ms Marie-Line Andreola (Team 1) and Mr Thierry Noël (Team 5)

UNIT WORKFORCE

Active staff	Number 06/01/2020	Number 01/01/2022
Full professors and similar positions	6	7
Assistant professors and similar positions	8	9
Full time research directors (Directeurs de recherche) and similar positions	8	8
Full time research associates (Chargés de recherche) and similar positions	7	8

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)	23	25
Permanent staff	52	57
Non-permanent professors and associate professors, including emeritus	3	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	11	
PhD Students	11	
Non-permanent supporting personnel	4	
Non-permanent staff	29	
Total	81	57

GLOBAL ASSESSMENT OF THE UNIT

The MFP unit contains nine research teams addressing questions from medical microbiology/virology, parasitology and mycology to molecular and structural microbiology. Two teams (Team 3, Membrane protein mechanisms and Team 4, Structure and function of bacterial nanomachines) are assessed as outstanding, while five teams are assessed as excellent (Team 1, Team 2, Teams 6-8) and two as very good (Team 5 and Team 9).

The scientific output of MFP is excellent with an overall of 267 papers published (including clinical articles), of which 150 scientific articles, among which 37 were in high-ranked journals. High-profile publications with an MFP member as principal author were for instance published in *Science* (one), *Nature Communications* (four), *EMBO Journal* (two).

Overall MFP has an excellent funding record (national: seven ANR grants as coordinator, ten as partners, two teams with FRM label; international: two ERC consolidator grants, one NIH-RO1 grant as coordinator). Two of the teams benefit from the Paraftrap LabEx and the unit has been instrumental in the recent success at the EquipEx call to implement a very unique imaging technology (NanoCryo Electron Microscopy), with national and international visibility. There are however a few teams for which funding is limited.

The unit is highly involved in teaching microbiology and its related topics at the Bordeaux University, both to science and medical students.

The future prospect of the unit, especially in the fields of virology and structural microbiology is excellent, with relatively large funds already secured, well established connections with the "Institut Européen de Chimie et Biologie" (IECB) and large area of expertise covered by the different teams. The move of seven out of the nine teams in a common space will increase the potential for collaboration between teams, but the organization of the space will need to be well optimized, since it is already clear that it will be limited. Finally, defining federative axes of collaborations is recommended to increase further the quality and visibility of the work carried out at MFP.

Considering all criteria, the committee has evaluated the unit on its whole as being excellent.

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