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## IHMC - Infections humaines à mycoplasmes et à chlamydiae

Rapport Hcéres

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# HCERES

High Council for the Evaluation of Research  
and Higher Education

Research units

HCERES report on research unit:

Mycoplasmal and chlamydial infections in humans

IHMC

Under the supervision of  
the following institutions  
and research bodies:

Université de Bordeaux

# HCERES

High Council for the Evaluation of Research  
and Higher Education

Research units

*In the name of HCERES,<sup>1</sup>*

Didier HOUSSIN, president

*In the name of the experts committee,<sup>2</sup>*

Joachim FREY, chairman of the committee

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

<sup>1</sup> The president of HCERES "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5)

<sup>2</sup> 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:                             | Mycoplasmal and chlamydial infection in humans |
| Unit acronym:                          | IHMC   |
| Label requested:                       | EA USC   |
| Present no.:                           | USC EA 3671                                    |
| Name of Director<br>(2014-2015):       | Ms Cécile BÉBÉAR                               |
| Name of Project Leader<br>(2016-2020): | Ms Cécile BÉBÉAR                               |

## Expert committee members

|          |  |
|----------|--|
| Chair:   | Mr Joachim FREY, University of Bern, Switzerland   |
| Experts: | Mr Michel SIMONET, Université de Lille (representative of the CNU)<br>Ms Agathe SUBTIL, Institut Pasteur Paris |

### Scientific delegate representing the HCERES:

Ms Catherine SCHUSTER

### Representatives of the unit's supervising institutions and bodies:

Mr Pierre DOS SANTOS  
Mr Yoann JUNG, University of Bordeaux  
Mr Roger MARTHAN (director of the Doctoral School n° 154 « Sciences de la Vie et de la Santé »)  
Mr Thierry PINEAU, INRA

## 1 • Introduction

### History and geographical location of the unit

In January 2009, the EA 3671 (University Victor Segalen Bordeaux 2) had been renewed for 2 years (2007-2010 four years contract). In January 2011, EA 3671 has also been labelled 'Unité Sous Contrat' (USC) by INRA and has been incorporated into the Animal Health department of INRA, within the context of the "One world, one health" initiative, for the current contract 2011-2014. Since January 2014, USC EA 3671, previously attached to University Bordeaux Segalen, has been part of University of Bordeaux, which has just been created with the merger of 3 universities (Bordeaux 1, Bordeaux Segalen and Bordeaux 4). The team is part of the Federative Structure of Research (SFR) 'Integrative Biology and Ecology' (BIE) (<http://www.bordeaux-aquitaine.inra.fr/sfr-bie>). The laboratory has also been nominated by the Ministry of Health and the *Institut de Veille Sanitaire* as the French National Reference Centre (CNR) for chlamydial infections since 1999.

### Management team

Head Ms Cécile BÉBÉAR

### HCERES nomenclature

SVE1\_LS6

SVE1\_SL2

SVE1\_SL7

### Unit workforce

| Unit workforce   | Number as at 30/06/2014 | Number as at 01/01/2016 |
|--|-------------------------|-------------------------|
| <b>N1:</b> Permanent professors and similar positions  | 5 (3,1 ETP)             | 5 (3,1 ETP)             |
| <b>N2:</b> Permanent researchers from Institutions and similar positions                         |                         |                         |
| <b>N3:</b> Other permanent staff (without research duties)                                       | 3 (2,7 ETP)             | 3(2,7 ETP)              |
| <b>N4:</b> Other professors (Emeritus Professor, on-contract Professor, etc.)                    | 1                       | 1                       |
| <b>N5:</b> Other researchers (Emeritus Research Director, Postdoctoral students, visitors, etc.) |                         |                         |
| <b>N6:</b> Other contractual staff (without research duties)                                     | 4 (2,1 ETP)             | 4(2,1 ETP)              |
| <b>TOTAL N1 to N6</b>  | <b>13 (8,9)</b>         | <b>13 (8,9)</b>         |

| Unit workforce  | Number as at 30/06/2014 | Number as at 01/01/2016 |
|---|-------------------------|-------------------------|
| Doctoral students   | 1                       |                         |
| Theses defended   | 3                       |                         |
| Postdoctoral students having spent at least 12 months in the unit | 1                       |                         |
| Number of Research Supervisor Qualifications (HDR) taken          | 1                       |                         |
| Qualified research supervisors (with an HDR) or similar positions | 4                       | 4                       |

## 2 • Overall assessment of the unit

### Global assessment of the unit

The major scientific achievements include (a) comparative genomics of mycoplasmas based on core genome and species-specific genes involved in metabolism and pathogenicity and on molecular markers (variable number tandem repeats or VNTRs) useful for genotyping; (b) the development of new diagnostic assays for infection epidemiology based on VNTRs at multiple loci (multi locus variable tandem repeat analysis, MLVA), to survey human *Chlamydia trachomatis* and *Mycoplasma* infections; (c) antibiotic susceptibility testing and analysis of antibiotic resistance in *Mycoplasma* sp. based on real-time PCR; (d) epidemiological investigations of genital infections by the above-mentioned microorganisms at aiming to define prevalence and risk factors during pregnancy and HIV infection (cohort studies); (e) the role of Th17 cells (involved in inflammation and autoimmune diseases) in host defence against *Mycoplasma* infections. Many members of the team have clinical and medical laboratory activities, including activities for the National Reference Centre for *Chlamydia* and are involved in master degree studies. The team is involved in the post-graduate research Master's degree "Microbiology and Immunology" and coordinates the educational units Epidemiology of Infectious Diseases.

Overall the output of the research entity is very good.

### Strengths and opportunities in relation to the context

- The team has national and international notoriety on human mycoplasmas, and strong local scientific interactions (especially with the Mollicutes INRA team, UMR 1332 *Biologie du fruit et pathologie*).
- It has been successful in establishing pertinent international collaborations which are documented in common publications.
- Many members of the team have clinical and medical laboratory activities, including activities for the National Reference Centre for *Chlamydia*, which are beneficial opportunities for research development.
- The team has access to state-of-the art facilities to conduct its project.

### Weaknesses and threats related to the context

- Despite the international scientific collaborations and notoriety, the team is poorly attractive for post-doctoral scientists from abroad due to lack of funding. The number of PhD students trained within 5 years is low relative to staff holding an HDR. There is a lack of fresh blood: most permanent positions are held by former trainees.
- A decreasing rate of funding for fundamental research limits the ability to undertake ambitious projects.

- The committee estimates that current research projects are too dispersed hampering team competitiveness.
- The Mollicute research community is small, and the international recognition of the team beyond this circle is not big, in spite of the emerging medical importance of *Mycoplasma* infections in industrialized countries.

### Recommendations

The team has a very high potential for further development of its research competences as it consists of a greatly motivated and well trained group of scientists and technicians, enjoys a broad national and international recognition and is well established in the field of human chlamydial and mycoplasmal infection biology. To reach this aim, the group should take advantage of the creation of the study group on human *Mycoplasma*, chaired by the Head of unit, at the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) to further strengthen this field and to build strong networks in order to apply to European calls for funds.

In the same view, the committee strongly recommends the team to get closer integrated to the Hospital-University's Microbiology groups in order to value their competences and broaden the interactions in the field of medical microbiology. This is of particular scientific and societal importance in the field of antibiotic resistance research and diagnosis.

As the expertise of the team comprises both chlamydial and mycoplasmal infectious diseases, The committee recommends to extend the current reference center 'CNR *Chlamydiae*' into a broader 'CNR *Chlamydiae and Mycoplasma*' in order to cover these two important subjects.

Since difficulties to raise research funding is an emerging problem world wide, the committee strongly recommends to focus on few main research topics in order to fully value the competences of the group, avoiding dispersal into too many smaller projects.

The group's competences would strongly profit from renewal of human resources. The committee therefore suggests to evaluate the possibility on future employments to attract researchers with an excellent work experience from renown international Universities.