

# HCERES

High Council for the Evaluation of Research  
and Higher Education

Research units

HCERES report on interdisciplinary  
research unit:

Mobilités : vieillissement, pathologie, santé

COMETE

Under the supervision of  
the following institutions  
and research bodies:

Université de Caen Basse-Normandie - UCBN

Institut National de la Santé et de la Recherche

Médicale - INSERM

Evaluation Campaign 2015-2016 (Group B)

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

Michel Cosnard, president

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

Mariano Alcañiz, chairman of the committee

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Under the decree N<sup>o</sup>.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 sole result of evaluation by the expert committee, the composition of which is specified below.

The assessments contained herein are the expression of an independent and collegial reviewing by the committee.

**Unit name:** Mobilités : vieillissement, pathologie, santé

**Unit acronym:** COMETE

**Label requested:** UMR-S

**Current number:** 1075

**Name of Director (2015-2016):** Mr Damien DAVENNE

**Name of Project Leader (2017-2021):** Mr Damien DAVENNE

## Expert committee members

**Chair:** Mr Mariano ALCAÑIZ, Universidad Politécnica Valencia, Spain

**Experts:** Mr Damien GALANAUD, La Pitié Salpêtrière, Paris (representative of the INSERM CSS)

Mr Claude GRONFIER, Inserm, Bron, Université Claude Bernard

Mr Vincent NOUGIER, Université Joseph Fourier (representative of the CNU)

### Scientifics delegates representing the HCERES:

Mr Jacques NOËL

Ms Régine SCELLES

### Representatives of supervising institutions and bodies:

Ms Anne GUESDON, representative Université de Caen

Ms Marie Josephe LEROY ZAMIA, representative INSERM

### Head of Doctoral School:

Mr Alain OURRY, Doctoral School n° 497, ED Normande de Biologie Intégrative, Santé, Environnement

## 1 • Introduction

### History and geographical location of the unit

The INSERM UMR-S 1075 / COMETE UNICAEN "Mobility: Attention, Orientation, Chronobiology" was created on January 1<sup>st</sup>, 2012. This creation is the result of a strategic combination in 2008 of two entities with respective experience in medicine and sport science (STAPS - "Sciences et techniques des activités physiques et sportives"). This grouping became ERI27 ("Équipe soutenue par la Région et par l'Inserm") in 2009 with the support of the "Région Basse-Normandie" and INSERM, as well as UMR ("Unités Mixtes de Recherche") at the beginning of the current five-year plan.

One essential aspect of this unit is its interdisciplinary activity bringing together researchers and teachers in neuroscience, STAPS and medicine wishing to combine their respective expertise to tackle the theme of mobility. Research objectives are structured through complementary methodologies and immediate clinical perspectives, especially in the field of ambulation and driving.

The unit has, since June 2015, new facilities inside the "Pôle des Formation et de Recherche en Santé" (PFRS) of the University of Caen-Normandie. These facilities bring together, in a single location, all the offices and rooms dedicated to experimentation in humans, which previously - due to the origin of its members (medicine, STAPS) - were scattered.

### HCERES nomenclature

SVE1\_LS4 Physiologie, Physiopathologie, Endocrinologie ;

SHS4\_4 Sciences et techniques des activités physiques et sportives ;

SVE1\_LS5 Neurosciences ;

SHS4\_2 Psychologie.

### Scientific domains

The unit COMETE studies cognitive mechanisms that underlie both types of mobility, ambulation and driving vehicle, and the development of therapeutics to prevent falls and other accidents.

The unit contributes to the development of mobility assessment tools, with the objective to know their associated functions and to develop appropriate rehabilitation programs.

Unit workforce

Unit workforce	Number on 30/06/2015	Number on 01/01/2017
N1: Permanent professors and similar positions	23	25
N2: Permanent researchers from Institutions and similar positions	1	1
N3: Other permanent staff (technicians and administrative personnel)	8	11
N4: Other professors (Emeritus Professor, on-contract Professor, etc.)		
N5: Other researchers from Institutions (Emeritus Research Director, Postdoctoral students, visitors, etc.)	3	
N6: Other contractual staff (technicians and administrative personnel)	1	
N7: PhD students	12	
TOTAL N1 to N7	48	
Qualified research supervisors (HDR) or similar positions	18	

Unit record	From 01/01/2010 to 30/06/2015
PhD theses defended	12
Postdoctoral scientists having spent at least 12 months in the unit	2
Number of Research Supervisor Qualifications (HDR) obtained during the period	4

## 2 • Overall assessment of the interdisciplinary unit

### Introduction

The strategy of the unit is centered on a synergic activity of researchers that are developing complementary interdisciplinary research around mobility. The scientific activity is both fundamental and applied with, in addition, the gradual introduction in recent years of translational studies from animals to humans. The approaches are mainly experimental and clinical, on healthy subjects or patients.

Since the last evaluation report (2011), the unit has grouped the different projects under 4 main scientific themes:

- the theme "Attention" is interested in the study of attentional processes involved when walking and when driving;
- the theme "Spatial Orientation" focuses on the study of neurophysiological processes involved in any movement;
- the theme "Chronobiology" is to understand the mechanisms that influence biological rhythmicity;

- the theme "Methodology and technology" is a separate issue since the technological and methodological development is a priority of the unit.

Each theme has a clear objective and presents a coherent scientific activity. This unit running is based on achieving the coherence of scientific activities within each theme; however, the unit as a whole shows a high interconnectivity between each theme in order to fulfill the main scientific objectives of the unit, which are:

- identification and understanding of control and regulation mechanisms of mobility and the factors that can alter them, with special interest in intrinsic factors and de-synchronizations of biological rhythmicity;
- screening and early diagnosis of mobility disorders;
- prevention and treatment of mobility disorders by non-pharmacological and/or pharmacological interventions.

From January 2017, the unit will change its organization from a theme-based structure to a project based organizational chart, maintaining its central objectives. The GMPC ("Groupe mémoire et plasticité comportementale" EA 4259) members will be integrated in the unit. The GMPC team is composed of 8 members and has expertise in research based on animal models. This integration will enhance the development of translational research from animal models to humans, and from fundamental to more clinical and technological research approaches.

Furthermore, the unit has strengths in the technological and methodological production, having created a start-up company (BodyCap) in 2011.

### Global assessment of the unit

Overall, the unit displays a centralization of its activity, which is clearly organized around the four sub-themes and is one of the strengths of the unit.

The level of funding has improved significantly since the previous evaluation. However, the unit still highly depends on local funding, although to a lesser extent than previously.

The scientific production has also improved markedly, both in number and quality with a marked increase in the percentage of publications with an IF greater than 3.

The unit's international visibility and economic relationship with the environment have improved. A start-up company, BodyCap, has been stabilized.

### Strengths and opportunities in the context

- number and quality of publications. The unit has published an adequate number of items original in peer-indexed journals with an average impact factor of 3.98, which is a good outcome (the average impact factor of journals which usually publish mobility related works is estimated to be 45). The productivity of the unit is 3.8 articles / year / FTE, which is a good result in the mobility field;
- relationship with the environment. The unit is very well established locally and regionally;
- interdisciplinarity. One of the main strength of the unit is its interdisciplinarity that gives it the opportunity of conducting original research activities on mobility that are quite difficult to conduct for other labs;
- translational research. The unit conducts translational research from animals to humans, which is a crucial aspect for the understanding of mobility mechanisms in humans. To do this, the unit is developing and mastering new models and tools. This capacity will be strengthened by the arrival of members of GMPC ("Groupe mémoire et plasticité comportementale" EA 4259);
- the access to the SFR CIREVE ("Centre Interdisciplinaire de Réalité Virtuelle") virtual reality facilities can greatly enhance the research quality of the unit's projects about locomotion.

### Weaknesses and threats in the context

- the unit has weak access and technical knowledge on imaging modalities (MRI, CT...) applied to mobility research;

- the international visibility of the unit must be enhanced by increasing its involvement in international bodies, editorial boards, and its ability to attract international researchers, students and postdocs;
- the presence of unit members on editorial boards of international journals in the field is limited.

### Recommendations

- the unit must enhance its activities oriented to the development of new models (like for example the model of vestibular lesion described in Vignaux et al., 2013) based on the data gathered during the last 5 to 10 years;
- the number of contracts with industries must be increased in order to diminish the dependency of the unit on public fund;
- the unit must pay attention to the good integration of the GMCP group.