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## Biochimie - Nutrition humaine

Rapport Hcéres

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# HCERES

High Council for the Evaluation of Research  
and Higher Education

Research units

HCERES report on research unit:

Laboratoire de Biochimie-Nutrition Humaine

Under the supervision of the following  
institutions and research bodies:

Agrocampus Ouest - Institut Supérieur des Sciences  
Agronomiques, Agroalimentaires Horticoles et du  
Paysage

Institut National de la Recherche Agronomique - INRA

# HCERES

High Council for the Evaluation of Research  
and Higher Education

Research units

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

Michel Cosnard, president

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

Patrick Borel, chairman of the committee

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Under the decree No.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:** Laboratoire de Biochimie-Nutrition Humaine

**Unit acronym:**

**Label requested:** INRA

**Current number:** USC 1378

**Name of Director  
(2015-2016):** Mr Philippe LEGRAND

**Name of Project Leader  
(2017-2021):** Mr Philippe LEGRAND

## Expert committee members

**Chair:** Mr Patrick BOREL, Université de Marseille

**Expert:** Ms Marie-Caroline MICHALSKI, Université Lyon 1

**Scientific delegate representing the HCERES:**

Mr Jean GIRARD

**Representatives of supervising institutions and bodies:**

Ms Emmanuelle CHEVASSUS-LOZZA, Agrocampus Ouest

Mr Romain JANTET, Agrocampus Ouest

**Head of Doctoral School:**

Ms Nathalie THERET, Doctoral School n° 92 "Vie Agro Santé/VAS"

## 1 • Introduction

### History and geographical location of the unit

The unit is located on the Agrocampus-Ouest in Rennes. It depends on the Agrocampus-Ouest (National School of Agronomy) and is under contract with INRA (“unité sous contrat” with the Human nutrition department called “Alimentation Humaine”). The unit is well recognized in the field of fatty acids, more precisely on their metabolism, their biological function and their effect on human health.

### Management team

The head of the unit is Mr Philippe LEGRAND, professor of Biochemistry at the Agrocampus-Ouest. The vice director is Mr Vincent RIOUX.

### HCERES nomenclature

SVE1\_LS4: Physiology, Pathophysiology, endocrinology

### Scientific domains

The general aim of the unit is to study the biosynthesis of fatty acids and the molecular mechanisms that explain their function. The unit mainly focuses on saturated and  $\omega$ -3 polyunsaturated fatty acids, but is has also projects on trans,  $\omega$ -6 and atypical fatty acids.

### Unit workforce

Unit workforce	Number on 30/06/2015	Number on 01/01/2017
N1: Permanent professors and similar positions	4	4
N2: Permanent researchers from Institutions and similar positions		
N3: Other permanent staff (technicians and administrative personnel)	4	4
N4: Other professors (Emeritus Professor, on-contract Professor, etc.)		
N5: Other researchers from Institutions (Emeritus Research Director, Postdoctoral students, visitors, etc.)		
N6: Other contractual staff (technicians and administrative personnel)	1	
N7: PhD students	2	
TOTAL N1 to N7	11	
Qualified research supervisors (HDR) or similar positions	3	

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

## 2 • Overall assessment of the unit

### Introduction

The main scientific objective is to develop original research in the field of fatty acid metabolism, fatty acid functions and requirements/recommendations, combining fundamental knowledge and interventional studies to meet the socioeconomic challenges targeted by Agrocampus-Ouest, INRA and ANSES “Agence nationale de sécurité sanitaire de l’alimentation, de l’environnement et du travail”. Following the previous evaluation, the unit has decided to focus on two main fatty acid classes, e.g. saturated (SFA) and polyunsaturated (PUFA) fatty acids. One of the previous topics (identification of candidate proteins for myristoylation or palmitoylation) has been put on hold, and new topics on trans and atypical fatty acids have been initiated.

### Global assessment of the unit

The laboratory is a small size unit with a “PI/technical staff/PhDs” type of organization. It has gained recognition for over 20 years in the specific field of metabolism and nutritional roles of fatty acids, by studying the biosynthesis and biochemical functions of fatty acids and their impact on human health. Located inside Agrocampus-Ouest, and considering the strong involvement of both PIs (professors) in the local faculty and doctoral school, the laboratory should efficiently interact with the University of Rennes and local laboratories with complementary expertises. The scientific activity of the laboratory is satisfactory, taking into account that all the researchers have teaching responsibility, and PIs contribute actively to the national and international debates, scientific societies and expert committees in the field. Notably, productions of the past period have contributed to re-evaluate the French dietary guidelines in saturated fatty acids and to reopen an international debate in this timely topic. They also contribute to best define the nutritional needs in n-6 PUFA (linoleic acid). The unit should enhance its collaborations with other units of the Human Nutrition Research Center Ouest. The unit benefits from the support of private contracts. The planned researches, which will focus on the metabolism and function of SFA, TFA (trans fatty acids) and PUFA, will likely provide important fundamental knowledge, which will have practical applications in humans and for public policies. They should thus enhance the participation of the unit in international research networks.

### Strengths and opportunities in the context

The unit benefits from a strong national and international recognition in fatty acid metabolism in mammals notably via its director. This is illustrated by the high number of invitations of the director to give a talk at national and international conferences. The research activities are strongly supported by contracts with private companies (160-170 K€/y vs 13 K€/y of institutional funding). The unit is strongly involved in training students of the Agrocampus-Ouest as well as of master and PhD students. The technician/researcher ratio of the team is relatively high compared to other research units in France, allowing good analytical possibilities. The unit publishes in top journals in the lipid field (Lipids, J Lipid Res...) and in general nutrition (Brit J Nutr).

### Weaknesses and threats in the context

There is no full-time researcher. The unit has never invited any international speaker and no post-doc has worked in the unit in the last 5 years. The unit researchers are co-authors of 24 publications, but only 15 of these publications were led by the unit researchers. There are no original papers in higher impact journals of human/clinical nutrition, neither in high impact journals of general interest. The unit has not been involved in either

European or ANR projects. It remains quite isolated in the local environment. A foreseen threat is the fate of the unit in the next contract, once the current director will pass on the direction of the unit.

### Recommendations

The team should target higher impact factor journals, expand international collaborations, and apply for national and international grants, especially to enhance the international positioning of the youngest researchers. Notably, hiring an international post-doctoral fellow could contribute to enhance significantly both productivity on a priority topic and international appeal. During the starting contract, the team should prepare its future for the next contract, notably by identifying possible associations with other local units.