



Research evaluation

FINAL RESUME ON THE RESEARCH UNIT
PhAN - Pathophysiology of Nutritional adaptations

UNDER THE SUPERVISION OF THE
FOLLOWING INSTITUTIONS AND RESEARCH
BODIES:

Université de Nantes

Institut national de recherche pour l'agriculture,
l'alimentation et l'environnement - INRAE

EVALUATION CAMPAIGN 2020-2021
GROUP B

Report published on December, 02 2021

High Council for evaluation of research and higher education



In the name of Hcéres¹:

Mr Thierry Coulhon, President

In the name of the experts committee²:

Ms Pascale Chavatte-Palmer, 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:

Pathophysiology of Nutritional adaptations

Unit acronym:

PhAN

Current label and N°:

UMR 1280

ID RNSR:

200616946Y

Application type:

Renewal

Head of the unit (2020-2021):

Ms Patricia Parnet

Project leader (2021-2025):

Mr Hervé Blottière

Number of teams and/or themes:

1

EXPERTS COMMITTEE MEMBERS

Chair:

Ms Pascale Chavatte-Palmer, INRAE, Jouy-en-Josas

Experts:

Ms Francisca Joly, Université de Paris (representative of CNU)

Mr Laurent Kappeler, Inserm, Paris

Ms Marie-Caroline Michalski, INRAE, Pierre-Bénite (representative of CSS INRAE)

Ms Delphine Mitanchez, Université François-Rabelais, Tours

Ms Estelle Pujos-Guillot, INRAE, Saint-Gènes-Champanelle (supporting personnel)

Mr Daniel Vaiman, INSERM, Paris

HCÉRES REPRESENTATIVE

Mr Claude Delcayre

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Bertrand Cariou, UFR Médecine de Nantes

Ms Emmanuelle Chevassus, Centre Pays de Loire INRAE

Ms Véronique Coxam, Département Alimentation Humaine INRAE

Mr Olivier Grasset, Université de Nantes

Ms Anne Royer-Moes, CHU de Nantes

Ms Rozenn Tanguy, Université de Nantes

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The UMR PhAN was created in 2006, merging the former UFDNH (Digestive Functions and Human Nutrition) INRA laboratory, the D. Darmaun's group working on pediatric nutrition, two senior neuroscientists (P. Parnet and F. Bolanos) and a geneticist (V. Amarger) as well as the clinical teams of J.C. Rozé (pediatrics) and N. Winer (obstetrics). Over the years, PhAN expanded through the recruitment of scientists and clinicians and included mass-spectrometry facilities. It remained, however, a one-team unit. The unit is located at Hotel Dieu in the CHU of Nantes since 2007 with the mass-spectrometry facilities in CRNH-West (Centre de Recherches en Nutrition Humaine).

RESEARCH ECOSYSTEM

PhAN is an UMR belonging to INRAE Pays de la Loire and Nantes University, located within Nantes CHU.

The unit collaborates with the local INRAE units BIA, LABERCA, StasC and SECALIM. Through the regional MIBIOGATE project, PHAN collaborates with UMT 1235 TENS. In the context of Nantes University, PhAN is member of the I-SITE SYSMICS "NExT" of Nantes University "Santé du futur et Industrie du futur".

The unit was a founding member of CRNH-West, whose director is a member of PhAN. PhAN is also tightly associated with CIC1413, a multidisciplinary clinical center, in particular for investigations in women, infants and children. The unit belongs to the Institute for Diseases of Gastrointestinal Tract (IMAD) and to DHU 2020 for Predictive, Preventive, Personalized and Participatory medicine. PhAN is involved with the national research cohorts EPIPAGE II and HUGOPEREN.

Internationally, PhAN is a founding member of "Recherche, Formation and Innovation » (RFI) "Food for Tomorrow" prompting international collaborations. Independently, it has developed successful collaborations with Mexican and Brazilian research teams. The unit has partnerships with several national and international partners in the food industry.

HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

SVE5-1, SVE6-3, SVE3-1

The unit theme is translational and clinical research on nutrition in the first 1000 days of life, focusing on nutrition, lipid metabolism, gastroenterology and neurophysiology.

MANAGEMENT TEAM

Current contract: Ms Patricia Parnet (director), Mr Dominique Darmaun (deputy director).

Project: Mr Hervé Blottière (director), Ms Patricia Parnet (deputy director).

UNIT WORKFORCE

Active staff	Number 06/01/2020	Number 01/01/2022
Full professors and similar positions	5	6
Assistant professors and similar positions	0	0
Full time research directors (Directeurs de recherche) and similar positions	2	3
Full time research associates (Chargés de recherche) and similar positions	7	7
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	7	5
High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	13	11
Permanent staff	34	32

Non-permanent professors and associate professors, including emeritus	0	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	2	
PhD Students	11	
Non-permanent supporting personnel	0	
Non-permanent staff	13	
Total	47	32

GLOBAL ASSESSMENT OF THE UNIT

PhAN is one of the few French laboratories dedicated to DOHaD (Developmental Origins of Health and Disease) research, with a rare competence on the microbiota-gut-brain axis. It is a strategic force for INRAE and its transdisciplinary research areas fit completely with INRAE 2030 and AlimH (Human nutrition) department scientific orientations. The leadership of the CRNH Grand Ouest is a strong asset for the unit. PhAN is also one of the founding members of the SF-DOHaD scientific society (Société Française pour la DOHaD). One remarkable point is PhAN's unique expertise on maternal milk.

PhAN has produced regularly during the evaluated term (266 articles with equal contribution to basic and clinical science, 67 % of the articles being categorized in the first quartile and PhAN members being first/last author of 69 % and 70 % in clinical and basic research, respectively). A decrease in the number of basic research subjects covered by PhAN members would help to decipher in depth underlying mechanisms and thus to target high profile journals more regularly on basic science aspects.

PhAN has successfully increased its fundraising capacity (global budget increase of 50 % these last year) however participation or leadership in international (e.g., European H2020) projects directly focusing on the main scientific focus of the research unit are still lacking. Its national recognition would deserve to be reinforced at the international level through expansion of international collaborations (towards Europe), participation to international conferences and leadership in international scientific societies and to European projects on the pivotal topics of the unit in particular through work on clinical cohorts. PhAN is strongly integrated in the regional and national scientific communities. Translational research is very dynamic, with access to pertinent national and international cohorts. In addition, the unit developed the LACTACOL and CEMAFOER cohorts as well as two clinical trials focusing on the unit's research themes (CITRUP, GSH-MAP).

PhAN has a marked focus on developing transfer to the society and medical world, with important partnerships with the industry (Nestlé, Danone, Laiterie de Montaigu, among others), however valorization of research through declarations of invention and patent filing is low as well as the number of CIFRE doctoral fellowships.

PhAN is strongly involved in training through research as exemplified through the coordination of two Master 2 courses (MANIMAL and Nutrition and Food Sciences), the teaching within a third Master (Biology-Health), the organization of several national and international summer schools and the training of a high number of students over the period (25 PhD, 27 Master 1 and Master 2 for 13 HDR). The PhD defenses occurred in average with an average of 2.5 articles per PhD and is followed by a great integration in professional life. However, the PhD training could be improved in particular regarding the average duration and the ratio HDR/PhD.

The unit's organization as one team and the inclusive organization of the scientific committee is good but did not enable the emergence of new leaderships. The unit's research is organized along four scientific axes: 1) impact of parental nutrition on fetal growth and metabolic and psycho-cognitive outcome, 2) Programming the Intestinal functions, 3) Programming the brain functions, 4) Microbiome as an early determinant factor for metabolic and cerebral health. The areas covered by the research axes are very wide, underpinning a certain level of dispersion. Altogether, the project should enable the unit to stabilize and even increase funding, with five projects already funded and others submitted or in construction. The unit's scientific axes, however, deserve to be tightened and new leaders to be allowed to emerge.

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