



Research evaluation

FINAL RESUME ON THE RESEARCH UNIT
ADEN - Nutrition, Inflammation and Microbiota-Gut-
Brain axis

UNDER THE SUPERVISION OF THE
FOLLOWING INSTITUTIONS AND RESEARCH
BODIES:

Université de Rouen
Institut national de la santé et de la recherche
médicale - INSERM

EVALUATION CAMPAIGN 2020-2021
GROUP B

Report published on October, 07 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 Kristin Verbeke, 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:

Nutrition, Inflammation and Microbiota-Gut-Brain axis

Unit acronym:

ADEN

Current label and N°:

UMR 1073

ID RNSR:

201220158N

Application type:

Renewal

Head of the unit (2020-2021):

Mr Pierre Déchelotte

Project leader (2021-2025):

Mr Moïse Coëffier

Number of teams and/or themes:

1

EXPERTS COMMITTEE MEMBERS

Chair:

Ms Kristin Verbeke, KU Leuven, Belgium

Experts:

Mr Yves Boirie, Université Clermont Auvergne, Clermont-Ferrand
(representative of CNU)

Mr Jean-Louis Delaunay, Sorbonne université, Paris (supporting personnel)

Mr Laurent Dubuquoy, Inserm, Lille (representative of INSERM CSS)

Mr Patrick Ritz, CHU Toulouse

HCÉRES REPRESENTATIVE

Mr Jean-Francois Hocquette

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Joël Alexandre, Université de Rouen

Mr Raymond Bazin, INSERM

Mr Christian Boitard, INSERM

Mr Vincent Richard, Université de Rouen

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The INSERM unit 1073, ADEN, has been created on the 1st January 2012 and renewed in 2017. ADEN is located in the Health Campus (Medicine/Pharmacy School and Rouen University Hospital) and is involved in the Institute for Research and Innovation in Biomedicine (IRIB). Because ADEN involves members from university, INSERM and also from Rouen University Hospital, it has developed close connections with several hospital departments (Nutrition, Gastroenterology, Visceral surgery, Physiology, Epidemiology, Medical Biochemistry ...) and with the Clinical Investigation Centre 1404 (CIC 1404).

RESEARCH ECOSYSTEM

ADEN is a member of the Institute of Research and Innovation in Biomedicine (IRIB) which federates five INSERM and two CNRS research laboratories, ten Rouen University research teams (EA) and one hospital/INSERM Clinical Investigation Center (CIC 1404). IRIB is located mainly on the Rouen Health Campus and the Mont Saint Aignan campus. Furthermore, the Evreux site of Rouen University provides a high-level environment for microbiology research. IRIB hosts three IBSA nationally-recognized facilities, five core facilities and two animal facilities. A Mixed Services Unit (UMS) supporting all units associated in IRIB is under creation. IRIB is an active component of the Chemistry-Biology-Health-Well Being (CBSB) research network of the Normandie region.

ADEN has thus close connections with several hospital departments but also with the CIC 1404 and the Biological Resource Centre (CRB).

ADEN is involved in Doctoral School 497 « École Doctorale Normande Biologie Intégrative, Santé, Environnement » and in specialized teaching at the Master level. In addition, several PIs contribute to other curricula by lectures in Rouen or in other universities in France or in joint curricula.

HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

SVE Sciences du vivant et environnement

SVE5

MANAGEMENT TEAM

The Unit 1073, ADEN, has been headed by Mr Pierre Déchelotte and Mr Moïse Coëffier as deputy head. At the end of 2021, Mr Moïse Coëffier will take over the role of unit director.

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 | 7 |
| Full time research directors (Directeurs de recherche) and similar positions | | 0 | 0 |
| Full time research associates (Chargés de recherche) and similar positions | | 1 | 1 |
| 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) | | 12 | 16 |
| | Permanent staff | 27 | 31 |
| Non-permanent professors and associate professors, including emeritus | | 1 | |

| | | |
|---|-----------|-----------|
| Non-permanent full time scientists, including emeritus, post-docs (except PhD students) | 2 | |
| PhD Students | 9 | |
| Non-permanent supporting personnel | 4 | |
| Non-permanent staff | 16 | |
| Total | 43 | 31 |

GLOBAL ASSESSMENT OF THE UNIT

The research activities of the ADEN unit have been focused on (i) epidemiological studies on eating disorders (ED), functional gastrointestinal disorders (FGIDs) and inflammatory bowel diseases (IBD), (ii) evaluation of gut metabolism and gut barrier in diseases and the impact of nutritional interventions and (iii) characterization of the gut-brain axis dysfunction and the innovative therapeutic approaches. The unit uses a translational approach to assess the pathophysiology of ED, FGIDs and IBD, a dysfunction of the microbiota-gut-brain axis being common to these diseases. The unit is composed of members from different backgrounds including researchers, teachers and clinicians with excellent skills in experimental models, nutrition and gastrointestinal diseases. This multidisciplinary approach has enabled the development of innovative therapeutic approaches (e.g., probiotics and neurostimulation) that have been brought to the stage of clinical evaluation and industrial development. The integrated research on three major public health problems and the combination of research along the knowledge chain (basic, clinical and applied research) result in very high-quality research and give the unit a unique position in Europe with an original combination of experimental models and clinical approaches.

During the last five years, ADEN published 238 scientific articles (188 original articles and 50 reviews) with 136 papers (57 %) as leaders (first and/or last authorship). The increase in the quantity of publications is paralleled with an increase in quality, more articles being published in more visible journals such as *Gut*, *Gastroenterology*, *Cell Metabolism*, *American Journal of Gastroenterology*, etc.

ADEN's unique position and recognition in Europe are further illustrated by its participation in several scientific societies and a strong involvement in European funding (partner in one Horizon 2020 project, one Interreg PeReNe program, two European Regional Development Funds, a COST program and a Joint Programming Initiative). It could be further improved by applying for ERC grants, which thus could improve the attractiveness of the unit for foreign PhD students and postdoctoral fellows. Additionally, ADEN obtained at the national level, two PHRC grants as coordinator and as partner, two other PHRC projects, one ANR project and one INSERM transversal program. At the national level, the unit should also use ATIPE-Avenir funding at its advantage.

The unit has demonstrated a remarkable ability to promote its research to society, including industrial clinical valorization and public outreach events. The industrial valorization pipeline is highly efficient from the patent registration and licensing (7 licensed patents) to the product development (EnteroSatys) through the creation of start-ups (Stimulics, TargEDys). Through the spin-off company TargEDys, the probiotic EnteroSatys® has been launched on the market for the control of body weight. Collaboration with industry (Nexira, Nutriset) and start-ups (TargEDys) has brought the unit in a position that allows applying for RHU funding. The unit members are (co) leaders in twenty-six national and two European clinical trials. Despite this great success with private partners, R&D contracts are often limited to collaborations with start-up companies and there are no collaborations with big (pharma) companies.

ADEN trained 35 Master 2 students and 30 PhDs and during this period, out of which 20 have defended their PhD within 38 months and an average of 2.3 published papers per student (1.95 as first author), some of which in highly respected journals (*Cell Metabolism*, *Nutrients*, *Clinical Nutrition* 2020, etc.).

The project in line with past activities with a similar strategy for the three disease groups (ED, FIGDs, IBD) is considered outstanding and considered feasible if the unit could consolidate permanent technical and researcher positions to secure the animal work.

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2 rue Albert Einstein
75013 Paris, France
T. 33 (0)1 55 55 60 10

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