

FINAL RESUME ON THE RESEARCH UNIT
MITOVASC - Physiopathology of Mitochondrial and
Vascular Disorders

UNDER THE SUPERVISION OF THE
FOLLOWING INSTITUTIONS AND RESEARCH
BODIES:

Université d'Angers

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

Centre national de la recherche scientifique - CNRS

EVALUATION CAMPAIGN 2020-2021
GROUP B



In the name of Hcéres¹:

Mr Thierry Coulhon, President

In the name of the experts committee²:

Mr Fabien Van Coppenolle, Chairman 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:

Physiopathology of Mitochondrial and Vascular Disorders

Unit acronym:

MITOVASC

Current label and N°:

UMR S 1083 CNRS 6015

ID RNSR:

201722388R

Application type:

Renewal

Head of the unit (2020-2021):

Mr Daniel Henrion

Project leader (2021-2025):

Mr Guy Lenaers

Number of teams and/or themes:

2

EXPERTS COMMITTEE MEMBERS

Chair:

Mr Fabien Van Coppenolle, Université Claude Bernard Lyon 1, Bron

Experts:

Mr Serge Adnot, Université Paris-Est Créteil Val de Marne, Saint-Maur-des-Fossés (representative of CSS INSERM)

Ms Catherine Brenner, CNRS, Villejuif (representative of CoNRS)

Ms Claire Crola Da Silva, Université Claude Bernard Lyon 1, Bron (supporting personnel)

Mr Bernard Geny, University of Strasbourg (representative of CNU)

Mr Patrick Lacolley, INSERM, Vandœuvre-lès-Nancy

Mr Uwe Schlattner, Communauté Université Grenoble Alpes, Grenoble

HCÉRES REPRESENTATIVE

Mr Claude Delcayre

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Raymond Bazin, ITMO Physiologie, Métabolisme, Nutrition

Mr Christian Boitard, ITMO Physiologie, Métabolisme, Nutrition

Mr Franck Bourry, École doctorale Bretagne Loire

Mr Yvan de Launoit, INSB CNRS

Mr Frédéric Delaleu, INSERM

Mme Gabrielle Inguscio, CNRS

Mr Nicolas Lerolle, Faculté de médecine d'Angers

Mme Isabelle Pellier, CHU d'Angers

Mme Carina Prip-Buus, INSB CNRS

Mr Philippe Simoneau, Université d'Angers

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

MITOVASC was created in 2017 at the University of Angers and is located in two buildings of the "Institut de Biologie en Santé". The unit is composed of two teams, the CARME Team directed by Mr Daniel Henrion (building IRIS 2) and the MitoLab Team headed by Mr Guy Lenaers (Building IRIS1).

The future director of MITOVASC will be Mr Guy Lenaers. Mr Daniel Henrion (actual director since 2012) will be the deputy director of the unit.

RESEARCH ECOSYSTEM

The MITOVASC unit is located at the University of Angers and is co-labelled by the CNRS (section 24) and INSERM (CSS3) as an "Unité Mixte de Recherche" (UMR).

HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

The two main scientific fields of the unit are SVE2 and SVE5.

The scientific sub-domains (from high to low priority) are:

-SVE2_1; SVE2_3; SVE2_2 and SVE4_2 for MitoLab team

-SVE5_1; SVE5_2 and SVE2_1 for CARME team.

The MITOVASC unit is dedicated to decipher the relationships between microvascular blood flow, cardiac physiology and mitochondrial bioenergetics and their involvement in human disorders.

MANAGEMENT TEAM

Mr Guy Lenaers will be the future director of MITOVASC. Mr Daniel Henrion will be the deputy director of the unit.

UNIT WORKFORCE

Name of the unit: MITOVASC

Active staff	Number 06/01/2020	Number 01/01/2022
Full professors and similar positions	25	25
Assistant professors and similar positions	13	13
Full time research directors (Directeurs de recherche) and similar positions	3	3
Full time research associates (Chargés de recherche) and similar positions	3	3
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	12
Permanent staff	56	56
Non-permanent professors and associate professors, including emeritus	6	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	5	
PhD Students	36	
Non-permanent supporting personnel	11	

Non-permanent staff	58	
Total	114	56

GLOBAL ASSESSMENT OF THE UNIT

The MITOVASC unit under the University of Angers, CNRS, INSERM supervising bodies with strong support from the CHU, is deciphering the relationships between microvascular blood flow, cardiac physiology and mitochondrial bioenergetics and their involvement in human disorders. It developed successful basic research and a strategy oriented to translate scientific outputs to clinical trials. MITOVASC composed of two teams, CARME (Mitochondrial metabolism, genetics and diseases) and MitoLab (Vascular mechanotransduction, remodelling and diseases) has a high scientific level (national and international).

The publication rate is excellent (730 papers in basic and clinical research, among them 304 publications with first and/or last authorships (including *Nature Communications*, *JAMA Neurology*, *Methods in Molecular Biology*, *Brain*, *Trends in Molecular Medicine*) or in collaboration (including *Nature Communications*, *Nature Genetics*, *Journal of Clinical Investigation*, *Genetics in Medicine*) with 18 % of the production resulting from the collaboration between the two MITOVASC teams (18 in high-profile journals). The large number of external collaborative top 10 % publications highlights the international visibility of the unit.

MITOVASC obtained one international (NIH) grant as partner and four European grants (1 COST and 1 ANR-PRCI both as coordinator and 2 as partner (E-Rare TreatOPON, and Deutsche Forschungsgemeinschaft)), national grants (9 as coordinator (ANR, PHRC...) and 6 as partnership), local grants (25) and funding from charities (40). The unit has thus room to improve its involvement in international and European grants and this could be achieved by encouraging young PIs to focus their projects toward translational research. The international recognition of the two teams is similar taking into account the older creation of CARME and the emergence of MitoLab. The international recognition of the unit could be further improved by better communication with the scientific community, by increasing the publications of its work in high level generalist journals, by attracting more foreign scientists and postdoctoral fellows and by coordinating international projects.

MITOVASC interaction with socio-economic world is strong as illustrated by the obtention of four patents, the creation five patented software, ten databases and production of seventeen cohorts of biological samples. The number of clinical trials is impressive (62), highlighting the strong relationships of the unit with the CHU of Angers. Translational research may also help to further develop industrial partnerships and patents.

The involvement of the unit in training through research is excellent as attested by the large number of Master 1 and 2 students (177), and PhD (57) trained and of PhD obtained (29) with all having at least one publication in first position.

The unit's life is well driven thanks to common councils and scientific councils twice a month between the two teams to promote and enhance internal common projects in a "cross-fertilization" strategy. These efforts must be sustained in particular to allow the emergence of new leaders within MITOVASC, in anticipation of the future contract in 2026.

The objectives and the project for the next contract are well designed, the future director and the team leaders should keep in mind the maintenance of a common project, while limiting the number of side projects to avoid dispersion.

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