Research evaluation

FINAL RESUME ON THE RESEARCH UNIT

PAnTher - Physiopathologie Animale et BioThérapie du muscle et du système nerveux

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

ONIRIS - École nationale vétérinaire, agroalimentaire et de l'alimentation, Nantes Atlantique,
Institut national de recherche pour l'agriculture, l'alimentation et l'environnement - INRAE

EVALUATION CAMPAIGN 2020-2021

GROUP B

Report published on July, 26 2021

In the name of Hcéres[1]:	In the name of the experts committee[2]:
Mr Thierry Coulhon, President	Mr Rafael Yáñez, 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:
Physiopathologie Animale et BioThérapie du muscle et du système nerveux
Unit acronym:
PAnTher
Current label and N°:
0703
Application type:
Renewal
Head of the unit (2020-2021):
Ms. Marie-Anne Colle
Project leader (2021-2025):
Ms. Marie-Anne Colle
Number of teams and/or themes:
1

EXPERTS COMMITTEE MEMBERS

Chair:	Mr Rafael Yanez, Royal Holloway, University of London, Royaume-Uni
Experts:	Ms. Véronique Decot, Université Lorraine Mr Hervé Guillou, INRAE Toulouse Ms. Nelly Pirot, Institut de Recherche en Cancérologie de Montpellier Ms. Nina Raben-Belenky, National Institute of Health, Bethesda, USA Mr Rafael Yanez, Royal Holloway, University of London, Royaume-Uni

HCÉRES REPRESENTATIVE

Ms. Ina Attrée

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Mr Jean-Marie Bach, ONIRIS
Ms. Emmanuelle Chevassus-Lozza, INRAE
Mr Fabrice Laurent, INRAE

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The laboratory is located in the City of Nantes (France) and was created in 1999. The laboratory is specialized in animal model pathology with researchers originally coming from the veterinary school. In 2006, they started to work on pathologies affecting nerves and muscles and developed gene- and cell-based therapeutic strategies in large animal models. Between 2010 and 2015, they implemented new methods for an integrated approach from gene to animal. The current PAnTher unit was formed by the merger of two teams (Mr K. Rouger and Ms. M.A. Colle) and focuses on the study of the tissue microenvironment and cell interactions in the neuromuscular system in the context of health and disease.

RESEARCH ECOSYSTEM

PAnTher is located in the National Veterinary School of Nantes (ONIRIS) site. ONIRIS also hosts the Boisbonne center for experimentation on large animal models, with which PAnTher closely collaborates, ultimately resulting in the creation in 2009 of an integrated IBiSA labeled platform for animal pathophysiology and biotherapy, which also includes the virus production center of the U1089 Inserm unit.

PAnTher has strong regional links in the context of the François Bonamy Federative Research Institute (particularly after the creation of CENN, a public-private partnership between Nikon and the University of Nantes), with the Nantes University Hospital through clinical collaborators, and the BIOREGATE Research, Formation and Innovation regional cluster (RFI) for regenerative medicine. The APEX platform is integrated within the BioGenouest network of technology platforms; additionally, within the INRAE 'Pays de la Loire' Center, APEX has been collaborating to explore approaches to study complex matrices (MAT EXPLOR).

Nationally PAnTher has joined NeurATRIS, a translational research infrastructure, CESTI, a European Centre for transplantation and Immunotherapy, has five collaborative projects with Synchrotron Soleil & the European Synchrotron Radiation Facility (ESRF) and is part of a national consortium on Pomple disease. APEX is part of Emerg'IN infrastructure for control of animal and zoonotic diseases.

HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

SVE Sciences du vivant et environnement

SVE2

MANAGEMENT TEAM

Ms. Marie-Anne Colle

UNIT WORKFORCE

PAnTher - Physiopathologie Animale et BioThérapie du muscle et du système nerveux

Active staff	Number 06/01/2020	Number 01/01/2022
Full professors and similar positions	2	2
Assistant professors and similar positions	0	2
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	1
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	10	9

Permanent staff	**13**	**15**
Non-permanent professors and associate professors, including emeritus	0	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	3	
PhD Students	1	
Non-permanent supporting personnel	1	
Non-permanent staff	**5**	
Total	**18**	**15**

GLOBAL ASSESSMENT OF THE UNIT

PAnTher undertakes basic and translational research aimed at understanding the pathophysiology of a group of neuromuscular diseases and the development of much needed new therapies for these disorders. The strengths of the unit are its excellent multi-disciplinary approach, state-of-the-art methodology (including sophisticated imaging techniques), multi-« omics » data analyses, the use of a variety of models, and its clinical relevance. The unit also includes the APEX platform, which provides outstanding, state-of-the-art services in imaging and histopathology to both the unit and the wider research community.

In the period under review, the unit has produced a remarkable number of scientific papers (69), of which about 28 % have a unit member as one of the leading authors (first or last) in leading journals like *Science Translational Medicine, Nature Communications, ACS NANO* and *Molecular Thera*py. The shifting focus of the unit towards more fundamental research is already producing valuable results, particularly in the field of imaging.

The unit has received nineteen grants from regional, national and European level and from charities and foundations, totaling 3.1M€ but is mainly partner in ANR and European grants.

Considering their size, PAnTher has an excellent output for training through research (8 PhD students, 7 PhD defended in the period under review with an average duration of 42 months, and 2.6 papers/PhD and 32 Master 1/Master 2 students), however the PhD supervision could be improved.

PAnTher with actual national recognition is becoming an internationally competitive unit and this could be further improved through publication in high-profile generalist journals, and increased involvement of PAnTher members in international consortia. Further profile may be obtained from involvement in scientific evaluation activities, increased participation in editorial activities, organization of congresses, application to national and international competitive grants as leaders.

The unit has a patent and has negotiated an impressive number of R&D contracts through the APEX platform, which highlights their reputation for excellence in this area. The participation in regional networks of excellence further underscores the reputation and regional influence of PAnTher.

Although the unit has state-of-the-art technology and powerful cross-fertilizing central nervous system and muscle expertise, and is combining fundamental and translational research models, the proposed research program is exceedingly comprehensive and should be refocused since this small unit operates in a highly competitive environment, with many academic institutions and pharmaceutical companies working in the same field. Thus, the proposed very ambitious research program of PAnTher would benefit to focus research effort on key areas to maximize impact and competitiveness.

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