Neurophysiologie respiratoire expérimentale et clinique

Rapport Hcéres

Research evaluation

REPORT ON THE RESEARCH UNIT:

Experimental and clinical respiratory neurophysiology

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:

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

Université Pierre et Marie Curie

EVALUATION CAMPAIGN 2017-2018

GROUP D

In the name of Hcéres[1]:	In the name of the expert committee[2]:
Michel Cosnard, President	Patrick Levy, 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 expert committees and signed by their chairman." (Article 8, paragraph 5);

[2] The evaluation reports "are signed by the chairman of the expert committee". (Article 11, paragraph 2).

This report is the sole result of the unit's 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 PRESENTATION

Unit name:	Experimental and clinical respiratory neurophysiology
Unit acronym:	n/a
Requested label:	UMR S
Application type:	Renewal
Current number:	UMR S 1158
Head of the unit (2017-2018):	Mr Thomas SIMILOWSKI
Project leader (2019-2023):	Mr Thomas SIMILOWSKI
Number of teams:	1

COMMITTEE MEMBERS

Chair: Mr Patrick LEVY, Université Grenoble Alpes

Experts:

Ms Esther BARREIRO, Institut Hospital del Mar, Barcelone, Spain

Mr Jean-François CHABOT, Université de Nancy (representative of CNU)

Ms Geneviève DERUMEAUX, Faculté de médecine de Créteil (representative of Inserm CSS)

Mr Etienne GUILLAUD, Université de Bordeaux (supporting personnel)

Ms Christina SPENGLER, ETHZ Zurich, Switzerland

HCERES scientific officer:

Mr Jorge BOCZKOWSKI

Representatives of supervising institutions and bodies:

Ms Annick CLEMENT, UPMC

Mr Cyrille MAHIEUX, Inserm

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The UMRS 1158 Inserm-UPMC unit, created on 1st January 2014 as a single-team, single-theme research unit, was formed from a U Paris 6 Pierre and Marie Curie University research team (initially EA 2397, then ER 10 since 2009). The unit's field of research, remained constant. Since 2012, the unit increased in and in material resources.

UMRS 1158 is situated on the Pierre and Marie Curie School of Medicine Pitié-Salpêtrière teaching hospital campus, a component of the Pierre and Marie University now part of Sorbonne University. It occupies two distinct premises. The first one is devoted to the murine model and the second to the human aspect of the unit's research. Finally, UMRS 1158 has a "Mobile respiratory neurophysiology laboratory" which enables performing physiological recordings on hospitalized patients.

MANAGEMENT TEAM

The head of the unit and the project leader is Mr Thomas SIMILOWSKI.

HCERES NOMENCLATURE

SVE5; SVE4.

SCIENTIFIC DOMAIN

Initially almost exclusively devoted to human physiology and pathophysiology, the unit subsequently developed, from a translational perspective, an animal research initially in frogs and further using a murine model. The research unit addresses the description and understanding of interactions between the nervous system and the respiratory system. It consequently also deals with the diagnosis and treatment of diseases involving these interactions. "Neuro-respiratory interactions" refers to all "levels", from respiratory muscles to dyspnea, including automatic control of ventilation and cortical control, and from molecular biology to psychophysiology, including in vitro and *in vivo* electrophysiology, using models ranging from small animal preparations to human patients, including "wild-type" and genetically modified animal models, and healthy human subjects, and based on a "bidirectional" approach (respiratory consequences of neurological and neuromuscular diseases; neurological impact of respiratory diseases).

Three main fields of respiratory neurophysiology have been identified: "Cerebral cortex and respiration", "Automatic control of ventilation", and "Respiratory neuro-stimulation" (with human and animal components in the last two cases).

UNIT WORKFORCE

Unit workforce	Number 30/06/2017	Number 01/01/2019
Permanent staff		
Full professors and similar positions	13	11
Assistant professors and similar positions	6	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.")	1	1

High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	2	3
TOTAL permanent staff	**23**	**23**
Non-permanent staff		
Non-permanent professors and associate professors, including emeritus	1	
Non-permanent full time scientists, including emeritus, post-docs	1	
Non-permanent supporting personnel	3	
PhD Students	9	
TOTAL non-permanent staff	**14**	
TOTAL unit	**37**	

GLOBAL ASSESSMENT OF THE UNIT

UMRS 1158 is one of the very few research entities worldwide that allows respiratory neurophysiology specialists from various fields, from molecular biology to psychophysiology, and using different models from animals to humans.

The scientific output is excellent at the best international level in respiratory neurophysiology. It provides to this Unit national and international recognition in this field. This is accompanied by excellent interactions with the non-academic world and specifically with industry, clearly evidenced through industrial contracts, patents, licensing and inventions and being a major asset of the laboratory. Training through research is excellent and constitutes a strength of this laboratory. Finally, the strategy for the next 5 years is ambitious and tackles major physiological and health issues in an original and creative way.

Overall, this is an excellent research unit. At the national level, it is the reference unit in the field of respiratory neurophysiology. Internationally, the team can actually be ranked among the top 10-15 in the different subthemes. But the main value is the combination of expertise and its integration in the field of respiratory neurophysiology. There are less than 10 research laboratories worldwide which encompass a majority of these dimensions and none for all of them.

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