Research evaluation

REPORT ON THE RESEARCH UNIT:
Brain Plasticity

UNDER THE SUPERVISION OF THE FOLLOWING INSTITUTIONS AND RESEARCH BODIES:
ESPCI PARIS
Centre National de la Recherche Scientifique - CNRS

EVALUATION CAMPAIGN 2017-2018
GROUP D

In the name of Hcéres[1] :	In the name of the experts committees[2] :
Michel Cosnard, President	Bruno Weber, Chairman of the committee

Under the decree No.2014-1365 dated 14 november 2014,

[1] The president of HCERES "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 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.

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UNIT PRESENTATION

Unit name:	Brain Plasticity
Unit acronym:	
Requested label:	UMR
Application type:	Renewal
Current number:	8249
Head of the unit (2017-2018):	Mr Thomas PREAT
Project leader (2019-2023):	Mr Thomas PREAT
Number of teams or themes:	Five

COMMITTEE MEMBERS

Chair:	Mr Bruno WEBER, University of Zurich, Switzerland
Experts:	Mr Olivier BERTRAND, Université de Lyon
	Mr Michaël DEMARQUE, Institut des Neurosciences Paris-Saclay (representative of CoNRS)
	Mr Alain ESCHALIER, Université Clermont Auvergne
	Mr Alberto FERRUS, Cajal Institute Madrid, Spain
	Ms Ilona GRUNWALD KADOW, Technical University of Munich, Germany
	Mr Yann HUMEAU, IINS, CNRS/Université de Bordeaux
	Mr Rémi SOUCHON, INSERM (supporting personnel)
HCERES scientific officer:	
	Ms Catherine HEURTEAUX
Representatives of supervising institutions and bodies:	
	Mr Jean-François JOANNY, ESPCI
	Mr Bernard POULAIN, CNRS

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

Neurobiology research was established at ESPCI in 1995 under the drive of Mr Pierre-Gilles DE GENNES, ESPCI director and Nobel prize laureate. Mr Jean ROSSIER was appointed as the first director of the Neurobiology laboratory. In 2004, Mr Jacques PROST, ESPCI director, and Mr Claude BOCCARA, scientific director, invited Mr Thomas PREAT to join ESPCI. His team moved in in 2006, coming from the Institut Alfred Fessard (CNRS, Gif-sur-Yvette). Under the direction of Mr Serge BIRMAN there was a transition period between the old structure run by Mr Jean ROSSIER and the new laboratory composed of autonomous teams. Since January 2012 Mr Thomas PREAT acts as director of the unit, which is now called laboratory of Brain Plasticity. ESPCI is located in central Paris and is a major institution of higher education (a French "Grande école d'ingénieurs"), consisting of 9 units, one of which is the Brain Plasticity unit.

MANAGEMENT TEAM

Mr Thomas PREAT, director of unit. No deputy.

HCERES NOMENCLATURE

SVE4_1 Neurologie.

SCIENTIFIC DOMAIN

Among the many methods applied in the unit today are molecular analyses, intracellular recording, cellular imaging, multielectrode recordings, behavioural assessments and informatics. These methods are used to study a wide range of neuroscience topics, spanning from memory systems, brain-machine interface, sleep and neuropathology of pain and neurodegeneration such as Alzheimer's and Parkinson's disease.

There is a thematic convergence of the teams, which all work on brain plasticity and neuromodulation, and their implications in the disease physiology. The teams use complementary techniques, approaches and organisms.

Team 1 - Genes and Dynamics of Memory Systems (GDMS) –Learning and memory in the fruitfly, with a novel strong focus on the interaction between memory and energy metabolism.

Team 2 - Genes, Circuits, Rhythms and Neuropathology (GCRN) –Investigations on the role of neurotransmitters, in particular dopamine, in the drosophila brain with a particular focus on Parkinson's disease pathophysiology.

Team 3 - Memory, Oscillations and Brain States (MOBS) –The group investigates neuronal mechanisms of memory consolidation during sleep.

Team 4 - Brain-Computer Interfaces (BCI) team –Brain computer interfaces to investigate neurophysiological processes in feedback learning and to develop new neurofeedback applications in patients.

Team 5 - Pain and Neural Adaptation (PNA) –Using the mouse for investigating pain circuits

UNIT WORKFORCE

Unit workforce	Number 30/06/2017	Number 01/01/2019
Permanent staff		
Full professors and similar positions	1	2 (incl. 1 recruitment in progress)
Assistant professors and similar positions	4	4
Full time research directors (Directeurs de recherche) and similar positions	3	2
Full time research associates (Chargés de recherche) and similar positions	5	4
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)	4	4
TOTAL permanent staff	**17**	**16**
Non-permanent staff		
Non-permanent professors and associate professors, including emeritus	2	
Non-permanent full time scientists, including emeritus, post-docs	5	
Non-permanent supporting personnel	6	
PhD Students	14	
TOTAL non-permanent staff	**27**	
TOTAL unit	**44**	

GLOBAL ASSESSMENT OF THE UNIT

The Brain Plasticity unit – consisting of five teams – is a top level scientific institute with complementary approaches and animal models. In particular, teams 1 and 3 are world leaders in their fields. The questions addressed by the teams are situated within a common framework that refers to brain plasticity and neuromodulation. Scientific output of the unit as a whole is excellent, in several teams outstanding, with numerous scientific papers published in high impact journals. Two teams are financially supported by the most prestigious ERC grants. Some teams of the unit perform outstandingly outside the academic field, e.g. have strong links to industry and strong media coverage. The unit will be restructured due to the departure of a team leader. The upcoming major building and reconstruction activities at ESPCI will pose a great challenge to the unit. A good strategy and above all a strong communication between the ESPCI direction and the unit before and during this period is therefore of high importance.

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