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INT - Institut des neurosciences de la Timone

Rapport Hcéres

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HCERES

High Council for the Evaluation of Research
and Higher Education

Department of Research Evaluation

report on research unit:

Timone Institute of Neurosciences

INT

under the supervision of
the following institutions
and research bodies:

Aix-Marseille Université

Centre National de la Recherche Scientifique - CNRS

Evaluation Campaign 2016-2017 (Group C)

HCERES

High Council for the Evaluation of Research
and Higher Education

Department of Research Evaluation

In the name of HCERES,¹

Michel Cosnard, president

In the name of the experts committee,²

Luciano Fadiga, 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)

Evaluation report

This report is the sole result of 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 name: Timone Institute of Neurosciences

Unit acronym: INT

Label requested: UMR

Current number: UMR 7289

Name of Director (2016-2017): Mr Guillaume MASSON

Name of Project Leader (2018-2022): Mr Guillaume MASSON

Expert committee members

Chair: Mr Luciano FADIGA, University of Ferrara, Italy

Experts:

- Ms Carine ALI, University of Caen (representative of CNU)
- Mr Hagai BERGMAN, The Hebrew University, Israel
- Mr Thomas BORAUD, Université de Bordeaux
- Mr Abdel EL MANIRA, Karolinska Institute, Sweden
- Ms Christine ENSUQUE, Université Montpellier 2 (representative of supporting personnel)
- Ms Laurence LANFUMEY, Psychiatry and Neurosciences Research Center, Paris
- Mr Gregor RAINER, University of Fribourg, Switzerland
- Ms Angela SIRIGU, Institute of Cognitive Sciences (representative of CoCNRS)
- Ms Catherine TALLON-BAUDRY, École Normale Supérieure, Paris
- Mr François TRONCHE, Institut de Biologie Paris-Seine, Université Pierre et Marie Curie, Paris 6

Scientific delegate representing the HCERES:

Ms Catherine HEURTEAUX

Representative of supervising institutions and bodies:

Mr Pierre CHIAPPETTA, Aix-Marseille Université

Mr Jean-Louis VERCHER, CNRS

Head of Doctoral School:

Mr Jean-Louis MÈGE, Doctoral School n° 62, “Sciences de la vie et de la santé”

1 • Introduction

History and geographical location of the unit

The INT is a recent institute officially created on January 1st 2012. The INT is the product of a major restructuring of the neurosciences landscape initiated in 2000 by the CNRS and the 3 Aix-Marseille Universities. During its maturation phase, INT gave itself two main objectives. First, to stream researchers from different laboratories willing to meet two major challenges for an integrative approach to neuroscience: (i) filling the gap between neurobiology and cognitive neurosciences; and (ii) promoting strong interactions between fundamental and clinical research. Second, to succeed in achieving a major renovation of a 4500 m² building entirely dedicated to the Institute on the Medical School Campus hosting high-quality technological resources, aiming at a balance between neurobiology, neurophysiology and human neurosciences and the fostering of collaborations between research teams covering a broad range of approaches to investigate brain functions. In January 2012, INT included 7 teams with a total of 90 people. Following the departure of its team leader, the STEVE team closed at the end of 2014. The INT attracted/opened 4 new teams in 2012-2018 (mirCOS, BaNCo, IMAPATH, MeCA).

Management team

The director of the INT was and will be Mr Guillaume MASSON. The deputy directors are Ms Christelle BAUNEZ and Mr Pascal BELIN.

HCERES nomenclature

Domaine principal: SVE4 Neurologie.

Domaine secondaire: ST6 Sciences et technologies de l'information et de la communication.

Scientific domains

INT puts together researchers and clinicians from diverse areas of expertise to create a highly synergistic environment. Understanding how the brain works implies to elucidate its neuronal mechanisms at multiple scales (from cells to networks) but within a functional framework. Molecular events, connectomes or single-unit/population activities are related to behavior and functions in normal and pathological conditions. Among the 10 research teams, about 1/3 targets cellular and molecular mechanisms in spinal and cortical networks, 1/3 investigates cortical and subcortical neurophysiological mechanisms of behavior in animals and 1/3 studies human cognition and its neural bases. Such a diversity of approaches converges onto three major brain functions: motor control (spinal and cortical systems); perception (audition, vision); and behavioral regulation systems (emotion, motivation).

Unit workforce

Unit workforce	Number on 30/06/2016	Number on 01/01/2018
N1: Permanent professors and similar positions	23	22
N2: Permanent researchers from Institutions and similar positions	31	29
N3: Other permanent staff (technicians and administrative personnel)	14	18
N4: Other researchers (Postdoctoral students, visitors, etc.)	11	
N5: Emeritus	1	
N6: Other contractual staff (technicians and administrative personnel)	11	
N7: PhD students	32	
TOTAL N1 to N7	123	
Qualified research supervisors (HDR) or similar positions	37	

Unit record	From 01/01/2011 to 30/06/2016
PhD theses defended	29
Postdoctoral scientists having spent at least 12 months in the unit	20
Number of Research Supervisor Qualifications (HDR) obtained during the period	11

2 • Assessment of the unit

Global assessment of the unit

INT is an outstanding centre of Neuroscience, internationally reputed, staffed by creative and productive scientists of high international visibility, producing excellent well-cited research published in good international scientific journals. Much of the research is financed by prestigious national and international grants. The approach of INT to neuroscience is interdisciplinary and with expertise in almost all state-of-the-art brain recording techniques. INT is very well managed and this is reflected by both the scientific productivity and the degree of satisfaction of the personnel.

During its maturation phase, INT gave itself the objective to stream researchers from different laboratories willing to meet two major challenges for an integrative approach to neuroscience: (i) filling the gap between neurobiology and cognitive neurosciences; and (ii) promoting strong interactions between fundamental and clinical research.

During the 2011-2016 period, INT has progressed along several research lines, mainly concerning: Spinal physiology and pathophysiology; motor-neuronal pathophysiology in SLA; normal and abnormal brain folding in autistics; brain processing of natural sound/scene statistics; dynamics of corticocortical interactions; control of eye/hand/arm movements; and sub-cortical mechanisms of reward-based learning and motivation control. As far as technological developments and transfer are concerned, the most relevant advancements have been achieved in software for neuro-imaging, new technologies for brain-machine interfaces, designing new drugs for spasticity, animal models for translational research and new methodologies for intravital optical imaging. INT has published more than 200 articles in scientific and medical journals. About 10% of these papers have been published in high impact factor journals.

INT has exciting plans for research over the next five years, continuing their more successful lines of research, and branching into new terrains. INT is very likely to continue in its role as outstanding international player over the next five years and beyond.