



INCIA - Institut de neurosciences cognitives et intégratives d'Aquitaine

Rapport Hcéres

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HCERES

High Council for the Evaluation of Research
and Higher Education

Research units

HCERES report on research unit:

Institute for Cognitive and Integrative Neurosciences
from Aquitaine

INCIA

Under the supervision of the following
institutions and research bodies:

Université de Bordeaux

Centre National de la Recherche Scientifique - CNRS

HCERES

High Council for the Evaluation of Research
and Higher Education

Research units

In the name of HCERES,¹

Didier HOUSSIN, president

In the name of the experts committee,²

Françoise SCHENK, chairwoman 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 result of the evaluation by the experts committee, the composition of which is specified below.

The assessments contained herein are the expression of an independent and collegial deliberation of the committee.

Unit name:	Institute for Cognitive and Integrative Neurosciences from Aquitaine
Unit acronym:	INCIA
Label requested:	UMRS
Present no.:	5287
Name of Director (2014-2015):	Mr Jean-René CAZALET
Name of Project Leader (2016-2020):	Mr Jean-René CAZALET

Expert committee members

Chair:	Ms Françoise SCHENK, University of Lausanne, Switzerland
Experts:	Ms Marianne AMALRIC, LNC, Aix-Marseille Université
	Mr Jean BLOUIN, LNC, Aix-Marseille Université
	Mr Benjamin BOUTREL, University of Lausanne, Switzerland
	Mr Youri IVANENK, IRCCS Fondazione Santa Lucia, Roma, Italia
	Ms Chantal MATHIS, LNCA, Université de Strasbourg (representative of the CoNRS)
	Mr Jean-Philippe RANJEVA, CRMBM, Aix-Marseille Université (representative of the CNU)
	Ms Agnès ROBY BRAMI, ISIR, UPMC, Paris
	Mr François TRONCHE, IBPS, UPMC, Paris
	Ms Isabelle VIAUD-DELMON, STMS, IRCAM UPMC, Paris

Scientific delegate representing the HCERES:

Mr Jacques NOEL

Representatives of the unit's supervising institutions and bodies:

Mr Hubert BOST, EPHE

Mr Yannick LUNG, Université de Bordeaux

Mr Roger MARTHAN (representative of the Doctoral School n° 154
« Sciences de la vie et de la Santé »)

Mr Jean Louis VERCHER, CNRS

1 • Introduction

History and geographical location of the unit

The INCIA has been created in 2011 as the “Institut de Neurosciences Cognitives et Intégratives d’Aquitaine”. It is presently situated in three nearby loci on the Carreira and Talence campuses of the University of Bordeaux. This creation resulted from the getting together of several teams issued from UMR 5227, 5228 and 5231 in order to constitute a network of research aimed at studying integrative neurosciences, as a common perspective. The proximity of the university campuses and of clinical units, the development of multifunction technical platforms formed a basis for translational research in that the specificity of clinical symptoms and handicaps can inspire specific experimental or training protocols.

This situation is in line with the broadening of an internationally acknowledged tradition of a “Bordeaux research line” initially combining electrophysiology and behaviour in the study of memory and consolidation in cognitive functions. Such multilevel approach is now indispensable. It emphasizes the accent put on various translational research strategies in the context of the strong development of neuroscience in the Bordeaux region with the INCIA being among the largest biology laboratories in Bordeaux.

Management team

Mr Jean-René CAZALETs is the manager (“directeur”) of the unit, and Mr Wim CRUSIO is assistant manager (“directeur adjoint”). The laboratory steering committee (20 persons, among which 4 ITA/IATOS, at least 3 researchers and 3 teachers) has a consultative role for scientific policy, resource management (all grants are announced and a 10% overhead on material is charged) and general functioning. Three committees are designed for questions of general interest (career follow-up, hygiene & safety, scientific and technical training).

HCERES nomenclature

SVE1_LS5 Neurobiologie

SHS4_2 Psychologie

SVE1_LS7 Épidémiologie, santé publique, recherche clinique, technologies biomédicales

Unit workforce

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
N1: Permanent professors and similar positions	24	30
N2: Permanent researchers from Institutions and similar positions	21	27
N3: Other permanent staff (without research duties)	11	15
N4: Other professors (Emeritus Professor, on-contract Professor, etc.)	3	2
N5: Other researchers (Emeritus Research Director, Post-doctoral students, visitors, etc.)	14	10
N6: Other contractual staff (without research duties)	2	2
TOTAL N1 to N6	75	86

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
Doctoral students	43	
Theses defended	45	
Post-doctoral students having spent at least 12 months in the unit	17	
Number of Research Supervisor Qualifications (HDR) taken	7	
Qualified research supervisors (with an HDR) or similar positions	27	

2 • Overall assessment of the unit

Global assessment of the unit

“Integrative neuroscience” is mediated by a program aimed at capturing how multilevel activity and information exchanges are involved in animal and human adaptive processes. This is a pivotal contribution to the relevance of the neuroscience in many fields. It tackles how function emerges from permanent interactions at molecular, cellular, systemic and individual levels. Naturally, this perspective has brought together different scientists working on various neural models, from isolated neural networks models - *in vitro* or artificial ones - to animals or humans during normal or pathological cognitive processes.

An exceptionally creative context is guaranteed by an intimate connection between research, clinical and teaching activities. It favors the merging of fundamental theoretical concepts with questions from the clinical field for the association of teaching and research activities: the best students are in need of critical and coherent explanations or questioning and clinicians require the identification of adaptive processes for rehabilitation to be combined with specific biomarkers. This ambition associates sophisticated techniques (represented here in particular by three highly efficient technical platforms, the Motion Analysis Platform, the Human Neuroimaging Platform, the Physiological Cell Platform and an Integrative Imaging plateau) with an effort to develop conceptual knowledge in order to overcome the dangerous illusion that a single molecule could mediate in itself a complex “mental function”.

A major quality of this unit is that it proves mastery of both technical and conceptual developments, in the laboratory as well as in its numerous teaching tasks (overall lectures, individually supervised Master and Doctoral students).

Strengths and opportunities in relation to the context

The different teams in the INCIA associate researchers from the fundamental laboratory perspective with clinicians and academic teachers to favor the interdisciplinary production of scientific knowledge relevant to “real life”. This unit has an excellent academic level, due to the relevance of the scientific results qualified from the high level international publications and from national and international collaborations. It does also satisfy the need of the general public to be informed of relevant research. The members of the INCIA respond to the public curiosity for what is conducted in the laboratories and also proposes ventures to support the clinical and economic effort aimed at reducing the burden of numerous neurological illnesses, accidents or societal diseases such as risk taking, drug dependencies and stress related pathologies. No social problem being isolated from the others, the INCIA research programs represent a realistic effort to tackle these interactions. The unit is also engaged in a considerable and successful effort towards academic education (tutoring Master and doctoral students, providing regular university lectures, attracting post-doctoral researchers).

The five-year set of projects combines in an optimal manner the pursuit of some promising research lines developed during the previous period with team reorganizations to tackle original and new questions. There is a good proportion of innovation and short term tackled questions.

Weaknesses and threats related to the context

A competitive scientific approach might tend to hinder cooperation, whereas this unit promotes an integrative effort. This relies on an optimal combination of separation and association of ideas and techniques. The visit of the experts committee has revealed that such delicate balance was possible and favored by the direction management. This is however a dynamic process that requires permanent movement and diversity in research strategies, each with the risk of inducing dysbalance. This means that the effort for a better geographic distribution of the teams (buildings in projects) must be encouraged. An effort in the management of the technical platforms is also indispensable. A platform is more than just a list of apparatuses with carefully scheduled access. It requires a honest pooling of skills and knowledge, often dedicated persons, the effort of whom must be acknowledged and facilitated with flexibility. This is not always easy, but it is indispensable for these platforms to respect the monetary investments and expensive apparatuses.

The administrative activity of the unit is presently maintained via a maximal engagement of the staff and this situation must certainly be improved to guarantee adequate administrative management.

Recommendations

During the visit, the experts committee has been able to notice that the management of the unit relied as much as possible on open community rules and expresses the wish that this policy be strongly encouraged for the development and sharing of technical platforms as well as for an effort in conceptual clarifications. The actual technical resources of the INCIA are in adequation with the projects, however, one of the technical platforms has been started by researchers of the INCIA and favored access to this resource must be maintained to guarantee the optimal development of part of the proposed projects. Among the classical though permanently indispensable resources, animal facilities and adequate administrative effort must be better supported during the coming period.

Finally, cognitive neuroscience does not only rely on material structures such as brain pieces and molecules, it uses words such as attention, memory or decision. Their use is worth some definition and explicit focus.