



agence d'évaluation de la recherche  
et de l'enseignement supérieur

Section des Unités de recherche

AERES report on the research unit  
Laboratoire de Neurobiologie de la Cognition  
From the  
CNRS  
Université d'Aix-Marseille 1

January 2011



agence d'évaluation de la recherche  
et de l'enseignement supérieur

Section des Unités de recherche

AERES report on the research unit  
Laboratoire de Neurobiologie de la Cognition  
From the  
CNRS  
Université d'Aix-Marseille 1

Le Président de l'AERES

Didier Houssin

Section des unités  
de recherche

Le Directeur

Pierre Glorieux

January 2011



# Research Unit

Name of the research unit : Laboratoire de neurobiologie de la cognition

Requested label : UMR CNRS

N° in the case of renewal : 6155

Name of the director : M. Bruno POU CET

# Members of the review committee

## Committee chairman

M. Pierre-Paul VIDAL, Université Paris 5

## Other committee members

M. Stéphane CHARPIER, Université Paris 6, Paris

M. Yoon CHO, Université de Bordeaux 1, Bordeaux

M. Marcel BRASS, Ghent University, Belgium

M. Martin MEYER, University of Zurich, Switzerland

M. George DISCALA, Université de Bordeaux 1 (CoNRS member)

M. Marie TRABALON, Université de Nancy 1 (CNU member)

# Observers

## AERES scientific advisor

M. Christian GIAUME

## University, School and Research Organization representatives

Mrs. Nathalie LERE CHE, CNRS



# Report

## 1. Introduction

- Date and execution of the visit: 24/01/2011 from 9h AM to 5h30 PM

The preparation and execution of the visit was as specified in the Aeres guidelines. The visit went smoothly with all aspects of the evaluation covered satisfactorily.

The program of the visit was the following

Presentation of past activity and project of the unit

Presentation of team 1 "Cognition and pathophysiology of basal ganglia"

Presentation of team 2 "Attention, chronometry and cerebral dynamics"

Presentation of team 3 "Neural bases of spatial cognition"

Presentation of team 4 "Neural bases of sensorimotor behavior"

Meeting with University and CNRS representatives, committee members and AERES representative

Presentation of team 5 "Spatio-temporal dynamics of auditory and motor learning"

In parallel:

Meeting with permanent scientists

Meeting with PhD students and non permanent personnel

Meeting with engineers, technicians and administrative assistants

Discussion between the committee and the director of the unit

Final door-closed meeting (committee members and AERES representative)

- History and geographical localization of the research unit, and brief presentation of its field and scientific activities

The Laboratory of Neurobiology and Cognition (LNC) is a research unit jointly administered by the CNRS and the University of Provence. The LNC is part of the Pôle 3C "Behavior, Brain, Cognition", itself embedded within a larger consortium, the Federative Research Institute (IFR) in Brain and Cognitive Science. The overall research aim of the LNC is to understand the neural bases of information processing underlying cognitive behavior in both humans and animals. This aim relies on a methodological approach that allows neural activity to be either manipulated (lesions, inactivations, pharmacology, transcranial magnetic stimulation - TMS) or measured (functional magnetic resonance imaging - fMRI, electroencephalography - EEG, magnetoencephalography - MEG, single unit recordings, local field potentials - LFP). The new unit will be divided into five teams.

The LNC is located in The Center for Behavior, Brain, and Cognition at the University of Provence (Pôle 3C: Comportement, Cerveau, Cognition), which is composed of three research groups working in the area of cognitive and integrative neuroscience (Cognitive Psychology - UMR 6146; Integrative and Adaptive Neuroscience - UMR 6149; and Neurobiology of Cognition - UMR 6155). The Pôle 3C provides a scientific environment that roughly spans the research areas covered by section 27 (Comportement-Cognition-Cerveau) of the Comité National de la Recherche Scientifique (CoNRS). Research performed at this center primarily concerns fundamental research in cognitive psychology, and cognitive and integrative neuroscience, but also importantly clinical research, and involves a wide variety of techniques including those of molecular biology and techniques



used to study human and animal behavior in a social setting. Today the Pôle 3C comprises about 180 members (50 lecturers/professors, 55 research scientists, and 75 Ph.D students/post-docs). The research groups of the Pôle 3C, including the LNC, are also engaged in active collaborations with the neuroscience group at the Timone hospital, as part of the interdepartmental research institute IFR131 "Sciences du Cerveau et de la Cognition" (directed by the director of the unit, LNC). Much of this collaboration is related to the use of brain Imaging equipment for human research at the Timone (fMRI, MEG) and animal research at St. Charles (fMRI). During the last 4 years (2006-2010) the Pôle 3C has obtained 3 ERC grants, 27 ANR grants, has deposited 6 copyrights, created 1 company (Mind Autonomy Research), 1 spin-off of the university of Provence (Siamed) and published 539 articles in refereed journals, 164 of which appeared in top-ranked journals (AERES ranking "excellent") and 123 in journals ranked "very good", and has organized a total of 46 conferences and workshops (mainly international).

- Management team

The head of the unit is M. Bruno POU CET.

- Staff members

	Past	Future
N1: Number of researchers with teaching duties (Form 2.1 of the application file)	5	10
N2: Number of full time researchers from research organizations (Form 2.3 of the application file)	14	12
N3: Number of other researchers including postdoctoral fellows (Forms 2.2, 2.4 and 2.7 of the application file)	7	13
N4: Number of engineers, technicians and administrative staff with a tenured position (Form 2.5 of the application file)	7	6
N5: Number engineers, technicians and administrative staff without a tenured position (Form 2.6 of the application file)	3	
N6: Number of Ph.D. students (Form 2.8 of the application file)	11	
N7: Number of staff members with a HDR or a similar grade	9	12

As indicated in the table of staff members for each team, technicians and administrative are not distributed to a specific team but attributed as needed for ongoing programs



## 2 . Overall appreciation on the research unit

- Summary

This unit seeks for its renewal after four productive years. It is a european-class unit with excellent scientists at several levels of seniority. Senior researchers with a good reputation are complemented by many junior colleagues, which have already shown that they can operate and contribute at a top international level. The new recruitments are excellent with regard to quality, and potential. All teams are attractive and develop interesting projects. A good sign indicator of their activity is the publication output with a very significant number of papers published in high impact factor journals. Several members of the units are also active in teaching activities at all levels. Overall, the committee was impressed by the quality of science in all groups. There is no question the UMR 6155 deserves a strong support of the funding agencies.

- Strengths and opportunities

This unit brings together a group of 24 investigators with interests in cognition from the cellular to the behavioral level, which allows a real multidisciplinary approach. A feature of this laboratory is also that half of investigators who carry heavy teaching duties. It gives them in theory less time and opportunity for research and making it more difficult for them to participate as in the research community. In that context, the enthusiasm and commitment of these colleagues to science and education is remarkable. During the past years the group has improved the quality of the journals in which they are publishing, so that many more of the group's publications are now in first-rate refereed journals. The students, postdocs and technicians of the LNC agree on the fact that the unit is a supportive and collegial environment. In good agreement with the opinion of the insiders, and it is also the impression of the committee, that facilities and know-how are shared.

- Weaknesses and threats and recommendations

In the context of the reunification of the three Universities of Marseille, the visibility and the potential of the Centre Saint-Charles (Pôle 3C) is certainly weakened by its subdivision in three units of relatively small size. Put together these three units would have a perimeter more adequate to confront the imminent restructuring of the University in Marseille.

The strengths and weaknesses of the LNC are linked: while the number of topics to be studied broadens the scientific culture of the laboratory, it also can lead to a lack of a specific research focus. The inclusion of a significant number of teaching faculty is commendable for many reasons, but also necessarily results in minoring the contribution to the international research community due to the teaching load. In that context, it is very important that the non-teaching scientists be highly productive, and support consistently and significantly their teaching colleagues.

The unit has too low number of permanent administrative and technical members as compared to the number of permanent scientists (ratio 0.24) and retirements during the coming years are going to worsen the situation. In that regard, the Committee noticed a 1 to 5 ratio in the favor of the CNRS concerning the origin of the supporting staff. It is an indication that the University should be solicited in priority to obtain new positions.

There is a problem of space being the increase of size of the LNC which evolved from 20 people in 650 m<sup>2</sup> to 60 in 750 m<sup>2</sup> over the past years.

Finally, the MRI needs to be replaced but that is a problem, which interests all Units in the Aix-Marseille University. Another point in that regard, concerns the poor functioning of the MEG and its maintenance.



- Production results

A1: Number of permanent researchers with teaching duties (recorded in N1) who are active in research	5
A2: Number of permanent researchers without teaching duties (recorded in N2) who are active in research	10
A3: Ratio of members who are active in research among staff members $[(A1 + A2)/(N1 + N2)]$	100%
A4: Number of HDR granted during the past 4 years (Form 2.10 of the application file)	0
A5: Number of PhD granted during the past 4 years (Form 2.9 of the application file)	10

### 3 . Specific comments

- Appreciation on the results

Being the production detailed below, there is no doubt for the committee that the research are original and of good quality. This facilitates a number and stable partnerships within the building, in Marseille through the IFR and at national and international level. Key numbers include the following:

- 95 publications (2006-2010) of which 2/3 in journals rated very good or excellent by AERES
- Number of chapters: 15
- Number of proceedings in international meeting: 60
- PhD theses: 12 defended; 11 in progress
- Invited conferences: 89
- Editorial boards: Eur. J. Neurosci, Hippocampus, J. Psychophysiol., Frontiers in Neuroscience, Behav. Brain Res., etc.
- Organization of national meetings: 7 ;
- Organization of international meetings: 14
- Involvement in administration and committees ANR, ATIP, CoNRS, University Committees, CS-INSB, DGA, EBBS, EBPS, Fond. De France, Soc. Neurosciences, etc.
- 38 research contracts (ANR, CNES, DGA,ERC, ESF, FRC, MILDT, etc.)
- About 2/3 of yearly budget (not including salaries) comes from sources outside CNRS

































