

HCERES

High Council for the Evaluation of Research
and Higher Education

Research units

HCERES report on research unit:

Nutrition et Neurobiologie intégrée

NutriNeuro

Under the supervision of
the following institutions
and research bodies:

Université de Bordeaux

Institut National de la Recherche Agronomique - INRA

Institut Polytechnique de Bordeaux – IPB

Centre National de la Recherche Scientifique - CNRS

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In the name of HCERES,¹

Didier HOUSSIN, president

In the name of the experts committee,²

Pierre GRESSENS, chairman of the committee

Under the decree N^o2014-1365 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:	Nutrition et neurobiologie Intégrée
Unit acronym:	NutriNeuro
Label requested:	UMR renouvellement
Present no.:	UMR 1286 INRA, Université Bordeaux, INP
Name of Director (2014-2015):	Ms Sophie LAYE
Name of Project Leader (2016-2020):	Ms Sophie LAYE

Expert committee members

Chair:	Mr Pierre GRESSENS, PROTECT, Inserm
Experts:	Mr Luc PENICAUD, Centre des Sciences du Goût et de l'Alimentation, CNRS Mr Jérôme TROUSLARD, (representative of the CNU)

Scientific delegate representing the HCERES:

Mr Jean-Marie ZAJAC

Representatives of the unit's supervising institutions and bodies:

Mr Marc BONNEU, INP
Mr Jean DALONGEVILLE, INRA
Mr Yannick LUNG, Université de Bordeaux
Mr Roger MARTHAN (representative of Doctoral School n°154)
Mr Hubert de ROCHAMBEAU, INRA

1 • Introduction

History and geographical location of the unit

NutriNeuro (UMR 1286) is an INRA - Bordeaux University - INP unit, located in the Pharmacy school. The research laboratories (1,450 m²) are located in the school of Pharmacy.

The main research aim of the UMR 1286 “Nutrition and integrative neurology” is to clarify, from the points of view of the definition of the principles of preventive nutrition for the brain, the repercussions of varying supplies of essential nutrients on mood and memory capacities in subjects. The research unit combines experimental and clinical research, along two complementary axes: i) studies on the neurobiological effects of unbalanced nutritional contents and obesity; ii) studies on the neurobiological effects of nutritional supplements. The translational approach benefits from the presence of clinicians within the unit.

At its creation, the UMR 1286 was already directed by the proposed director and comprised two teams that had merged together prior to the creation of the unit. In the two years preceding its creation, there had been a significant increase in the number of scientific staff, the unit having recruited 1 INRA researcher, 1 professor, and 1 associate professor. Since its creation, the unit has recruited 2 INRA researchers and 1 clinician psychologist.

The unit has been able to establish/update state of the art platforms including (1) animal facilities, (2) a phenotyping core facility for rodents, (3) an *in vivo* imaging core facility including access to a 2-photon microscope, (4) an electrophysiology core facility, (5) a molecular biology core facility, (6) a microdialysis and HPLC analysis core facility and, (7) a biochemistry core facility. All these core facilities are mutualized and shared among the unit.

Management team

The proposed director is a research director at INRA who has been key in the creation of the unit, managing to merge two existing laboratories into a single unit. Her previous management of UMR 1286 has proven to be efficient in promoting the growth of the lab by attracting new researchers and in establishing technological platforms and industrial partnerships.

The new organization chart corresponds to 2 teams, that are well balanced in terms of size and competences, partly due to the transfer of some researchers from one team to the other one, aiming at combining within a team the necessary competences. This slight adjustment when compared to the initial organization seems very adequate and reflects the capacity of the director to appropriate decisions for optimizing the research and her capacity to put these decisions into practice.

The management structure has been clearly described: the director of UMR 1286 acts as the representative of the laboratory and of the executive committee with respect to the supervisory organizations. The decision-making body of the laboratory is the Executive Committee, which is composed of the leaders of the teams. The focus is put on consensus, with a clear concern to promote the collective interest. This is exemplified by the budget management policy which requires that 20 % of the external grant budget from all teams be pooled in order to finance activities of general interest such as shared equipments. The laboratory council acts as an advisory board and gives its views on the decisions of the Executive Committee.

The PhD students and post-docs appear to be well integrated. They have very good interactions with their supervisors and with the PIs, and showed a good team spirit. The technical members are happy to be an integral part of this laboratory and feel involved in the experiments. They are very dynamic and get involved in the laboratory life, offering suggestions.

Overall, the governance appears excellent, the organization efficient and collegial, the atmosphere studious, consensual and friendly.

HCERES nomenclature :

SVE1_LS4 Physiologie, physiopathologie, endocrinology.

Unit workforce

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
N1: Permanent professors and similar positions	10 [4,7]	10 [4,7]
N2: Permanent researchers from Institutions and similar positions	9 [8,5]	9 [8,5]
N3: Other permanent staff (without research duties)	14 [12,9]	14 [12,9]
N4: Other professors (Emeritus Professor, on-contract Professor, etc.)	1	1
N5: Other researchers (Emeritus Research Director, Postdoctoral students, visitors, etc.)	7	4
N6: Other contractual staff (without research duties)	5	1
TOTAL N1 to N6	46 (39,1)	39 (32,1)

Unit workforce	Number as at 30/06/2014	Number as at 01/01/2016
Doctoral students	13	
Theses defended	11	
Postdoctoral students having spent at least 12 months in the unit	13	
Number of Research Supervisor Qualifications (HDR) taken	4	
Qualified research supervisors (with an HDR) or similar positions	13	13

2 • Overall assessment of the unit

Global assessment of the unit

During the last 5 years, under the dynamic and excellent leadership of the director, the research unit has structured an innovative and translational project on the role of nutrition on brain function and cognition. The unit has acquired a leading position in this emerging field that has potentially a major impact on public health. The research is of great quality as demonstrated by an increasing number of papers in high impact journals. The integration of the unit in the Bordeaux neurosciences is very good and could further benefit from a membership within the Labex Brain. The unit has developed several state-of-the art technological platforms that allow the researchers to propose ambitious projects. The structuration of the unit in 2 teams is very relevant. The governance is excellent and the atmosphere in the unit is very friendly, favoring interactions between researchers. Technical staff is perfectly integrated and participates to the different projects. The unit has demonstrated its capacity to obtain numerous research grants and to build collaborations with industrial partners.

Overall, the unit has reached the excellence.

Strengths and opportunities in relation to the context

- Dynamic leadership by a highly driven and committed director who is a well-recognized neuroscientist in her field, and by a co-director who has strong links with clinicians and industry.
- Key French actor in the field.
- Unique configuration and expertise at the interface between basic and clinical research.
- Strong collective dynamic.
- Multidisciplinary team.
- Phenotyping platform of healthy and sick subjects and access to numerous platforms to explore human subjects in the fields of nutrition and neurosciences.
- Young and promising scientists.
- Very good integration in the Bordeaux neuroscience community.
- Good capacity to obtain external funding.
- Strong industrial partnerships.
- The proposed organization chart includes 2 well-balanced teams. This organization corresponds to a well thought-of plan to allow a few subgroups to emerge within the next 5 years, while providing them with a secure, consistent transitional environment.
- Ambitious, innovative and promising project with far reaching objectives aimed at implementing high level translational research in the field of nutrition in neurosciences.
- Strong support from INRA.

Weaknesses and threats related to the context

- Size of the unit in regard to competitors in the field and in regard to local neuroscience units.
- Not integrated in the Labex Brain.
- Lack of significant interaction with SHS.
- Lack of large grant funding (Horizon2020).

Recommendations

- The unique configuration of the unit at the interface between basic research and clinic should be exploited to attract young scientists.
- The committee feels that it will be of strategic importance to increase the interactions with groups of SHS as this would be an original and extremely useful addition to the present projects.
- The committee feels that the integration of the unit in the Labex "Brain" would significantly increase the long-term stability of the unit.
- In order to enhance the prominence of the unit and solidify its position as a leader in the field via publications in high profile journals, the PIs should focus on a more in-depth analysis of cell and molecular mechanisms.
- The acquisition of in-house competence in in vivo imaging particularly in human would strengthen the links with imaging facilities and enhance the translational aspects of the unit.
- Collaborative studies between the two teams on the potential interactions between neuroinflammation and HPA axis appears as a strategic opportunity.