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# GMFC - Génomique et médecine personnalisée du cancer et des maladies neurologiques

Rapport Hcéres

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HCERES

High Council for the Evaluation of Research and Higher Education

Research units

# HCERES report on research unit:

## Genomics and Personalized Medicine in Cancer and Neurological disorders

## GPMCND

## Under the supervision of the following institutions and research bodies:

Université de Rouen

Institut National de la Santé et de la Recherche Médicale - INSERM

Evaluation Campaign 2015-2016 (Group B)

# HCERES

High Council for the Evaluation of Research and Higher Education

Research units

*In the name of HCERES,*[1]

Michel Cosnard, president

*In the name of the experts committee,*[2]

Marie-Paule Roth, chair 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: | Genomics and Personalized Medicine in Cancer and Neurological Disorders |
| Unit acronym: | GPMCND |
| Label requested: | UMR |
| Current number: | Fusion of INSERM U1079 + U918 + ERI INSERM/REGION 28 |
| Name of Director (2015-2016): | |
| Name of Project Leader (2017-2021): | Mr Thierry FREBOURG |

# Expert committee members

| | |
|---|---|
| Chair: | Ms Marie-Paule ROTH, Centre de Physiopathologie de Toulouse Purpan, Toulouse |
| Experts: | Mr Marc BILLAUD, Institut Albert Bonniot, Grenoble |
| | Ms Mary CALLANAN, Institut Albert Bonniot, Grenoble (Representative of INSERM CSS 2) |
| | Mr Pierre GRESSENS, Hôpital Robert Debré, Paris |
| | Ms Elisabeth TOURNIER-LASSERVE, Université Paris Diderot (Representative of the CNU 4704) |

Scientific delegate representing the HCERES:

Mr Pierre COUBLE

Representatives of supervising institutions and bodies:

Ms Anne GUESDON, Université de Caen Basse-Normandie

Ms Marie-Josèphe LEROY-ZAMIA, INSERM

Mr Laurent YON, Université de Rouen

Head of Doctoral School:

Mr Vincent RICHARD, Doctoral school ED NBISE n° 497, "Normandy's Integrative Biology, Health, Environment".

# 1 • Introduction

## History and geographical location of the unit

The proposal consists in the fusion of three existing structures located in Rouen: Inserm UMR 1079 (Genetics of Cancer and Neuropsychiatric Diseases), headed by Mr Thierry FREBOURG (2 teams), Inserm UMR 918 (Genetics ad Clinics of Mature Lymphoid neoplasms), headed by Mr Fabrice JARDIN, and ERI Inserm/Region 28 teams (Microvascular endothelium and neonate brain lesions), headed by Mr Bruno GONZALEZ, to form a novel entity "Genomic and Personalized Medicine in Cancer and Neurological Disorders (GPMCND)" affiliated to Inserm, University of Rouen and University of Caen, and of which Mr Thierry FREBOURG will be the director. Notably, two groups located at the "Centre de Lutte Contre le Cancer" (team Oncogenetics) and at the University of Caen (team MICAH) will join the new entity and be integrated in the Frebourg and Jardin teams, respectively. Joining forces working on the genetics of cancer and of intellectual deficiencies in the Normandy region as well as pooling resources are justified on scientific grounds and will allow the participants to take a further step toward international visibility.

The four components of the new structure are located on a single geographical site, the Medical Campus of Rouen, in the immediate proximity of the Faculty of Medicine and Pharmacy, the University Hospital and the Comprehensive Cancer Centre. The Frebourg, Campion and Gonzalez teams are located on different floors of the same building, whereas the Jardin team is in an adjacent building. Modern means of communication are used for interactions with scientists in Caen.

## Management team

The governance of the future research unit is the responsibility of its director, who meets with his team leaders on a weekly basis to discuss both the organizational (budget allocation, grant applications, equipment needs, recruitments….) and the scientific strategy. This mode of functioning seems well accepted not only by the team leaders but also by the different categories of staff (research scientists, technicians, students and post-docs). The fusion project has been discussed with the staff and received general approval.

## HCERES nomenclature

SVE1_LS2 Genetics, Genomics, Bioinformatic

SVE1_LS4 Physiology, Physiopathology, Systemic medical biology

## Scientific domains

The scientific domains of research of the unit include inherited or somatic forms of cancer, as well as intellectual deficiencies associated with newborn cerebral lesions or with early onset Alzheimer disease, with human genetics as the unifying link.

## Unit workforce

| Unit workforce | Number on 30/06/2015 | Number on 01/01/2017 |
|---|---|---|
| **N1**: Permanent professors and similar positions | 12 | 28 |
| **N2**: Permanent researchers from Institutions and similar positions | 3 | 6 |
| **N3**: Other permanent staff (technicians and administrative personnel) | 12 | 28 |
| **N4**: Other professors (Emeritus Professor, on-contract Professor, etc.) | | |
| **N5**: Other researchers from Institutions (Emeritus Research Director, Postdoctoral students, visitors, etc.) | 4 | |
| **N6**: Other contractual staff (technicians and administrative personnel) | 3 | |
| **N7**: PhD students | 12 | |
| **TOTAL N1 to N7** | **46** | |
| Qualified research supervisors (HDR) or similar positions | 9 | |

| Unit record | From 01/01/2010 to 30/06/2015 |
|---|---|
| PhD theses defended | 21 |
| Postdoctoral scientists having spent at least 12 months in the unit | 8 |
| Number of Research Supervisor Qualifications (HDR) obtained during the period | 3 |

# 2 • Overall assessment of the unit

## Introduction

The main research projects of the unit consist in characterizing, using NGS-based technologies, genetic bases of both cancer and neuropsychiatric disorders. The stated objective is to develop personalized markers and treatments for these diseases.

Two of the teams are investigating either inherited or somatic forms of cancer, with a clear focus on Li-Fraumeni syndrome, breast and ovarian cancer, colorectal carcinoma and lymphomas.

The other two teams are working essentially on intellectual deficiencies associated with newborn cerebral lesions or early onset Alzheimer disease, and have complementary expertise in neurobiology and genomics.

Human genetics constitutes the unifying link between the four teams. Bringing the four teams together in the same unit will permit to mutualise expensive equipment as well as expertise in bioinformatics and biology. The restructuration will favour interactions of researchers with complementary backgrounds and facilitate multidisciplinary translational research in medical genomics and personalized medicine. It will also increase the critical mass of the unit sufficiently to enhance its attractiveness at the national and international levels.

## Global assessment of the unit

The new constellation will bring together researchers with complementary expertise in the field of cancer and neuropsychiatric disorders. The scientific interests are clearly and coherently oriented on promoting a better knowledge of the genetic bases of these diseases and on developing translational research in the field. The committee felt that the projects presented have high relevance and clinical impact.

The four founding teams have a strong record of publications in internationally recognized journals. The committee noticed a number of fruitful initiatives in applying for research grants and in participating in key consortia at the national and international levels. Members of this unit have a good capacity to interact with non-academic partners (research and development), demonstrated by production of several patents, by partnerships with start-ups and collaborations with industrial partners.

The director has a real and efficient leadership, with a clear vision of the future and good expectations in terms of scientific coherence and outputs, and all team leaders actively participate in the decision making process.

In addition, team members have a strong involvement in educational programs and research training.

In conclusion, the overall impression of the panel on the accomplishments, relevance of the projects, level of publication, funding, interaction with non-academic partners, training through research, as well as the new organization proposed and governance was excellent.

## Strengths and opportunities in the context

- Lab members have very strong interactions with the clinics, which is a major strength for developing translational programs.
- Lab members have the capacity to build large cohorts of particularly well-phenotyped and documented patients (Li-Fraumeni syndrome, Alzheimer disease, prematurity…) and to address the most relevant questions.
- Lab members participate in key consortia at the (inter)national level.
- Lab members have an excellent ability to raise funds, and the high throughput genomic platforms are exceptionally well equipped.
- The lab has an excellent expertise in bioinformatics and biostatistics.
- Lab members make continuous efforts to develop translational research and knowledge transfer to the clinics.

- The 4 team leaders have a strong leadership in their respective fields.
- The director has a strong leadership and has management skills that promote motivation and create a positive atmosphere.
- The Normandy region is strongly supportive, as are the Universities of Rouen and Caen.

## Weaknesses and threats in the context

- There are too few permanent researchers in the different teams, which may limit the capacity to develop functional investigations.
- Functional studies on lymphoma are carried out on a distant site (Caen), but, apparently, there is a good integration strategy of team 2, and this was not considered as a major obstacle by the committee.
- There is risk of dispersion due to the high number of projects.

## Recommendations

- The committee recommends to implement a more aggressive strategy to attract senior post-docs and junior leaders with AVENIR, ANR or ERC grants, particularly in order to reinforce functional aspects, and to encourage them to apply for Inserm positions.
- The committee recommends to keep the number of projects in agreement with the size of the four teams.