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## IGDR - Institut de génétique et développement de Rennes

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 of Genetics and Development of Rennes

IGDR

Under the supervision of  
the following institutions  
and research bodies:

Université de Rennes 1

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,<sup>1</sup>*

Michel Cosnard, president

*In the name of the experts committee,<sup>2</sup>*

Marco Milán, chairman of the committee

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Under the decree No.2014-1365 dated 14 november 2014,

<sup>1</sup> The president of HCERES "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5)

<sup>2</sup> 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:	Institute of Genetics and Development of Rennes
Unit acronym:	IGDR
Label requested:	UMR
Current number:	UMR 6290
Name of Director (2015-2016):	Mr Claude PRIGENT
Name of Project Leader (2017-2021):	Mr Reynald GILLET

## Expert committee members

Chair: Mr Marco MILÁN, Institute for Research in Biomedicine, Barcelona, Spain

Experts:

- Ms Agnès BERNET, Centre de Recherche en Cancérologie de Lyon
- Ms Kerstin BYSTRICKY, Laboratoire de Biology Molecular Eucaryote, Toulouse (representative of the CNU)
- Ms Fatima GEBAUER, Center for Genomic Regulation Barcelona, Spain
- Mr Olivier JEAN-JEAN, Institut de Biology Paris-Seine
- Mr Helder MAIATO, Instituto de Biologia Molecular e Celular, Portugal
- Mr Andrew MCAINSH, Warwick Medical School, UK
- Mr Patrick MERALDI, Cell Physiology and Metabolism Department, Switzerland
- Mr Guy PERRIÈRE, Laboratoire de Biométrie et Biology Évolutive, Villeurbanne
- Mr Guillaume PINNA, CEA Saclay, Gif-sur-Yvette (representative of supporting personnel)
- Mr Patrick SCHULTZ, IGBMC, Illkirch
- Ms Anne SPANG, Biozentrum, Switzerland
- Mr Thomas SURREY, The Francis Crick Institute, UK
- Mr Pascal THÉRON, Institut de Biology Valrose, Nice (representative of CoCNRS)

Scientific delegate representing the HCERES:

Mr Pierre COUBLE

Representatives of supervising institutions and bodies:

Mr Jean-Maurice DURA, CNRS

Mr Claude LABIT, University of Rennes

Head of Doctoral School:

Ms Nathalie THERET, Doctoral School n° 92 « Vie, Agronomie et Santé »

## 1 • Introduction

### History and geographical location of the unit

The Institute of Genetics and Development of Rennes (IGDR) is a CNRS research laboratory associated with the University of Rennes 1. It was created 5 years ago after the fusion of 2 research units CNRS/UR1 UMR6026 and UMR6061; it is currently the major research institute dedicated to basic research in Bretagne, and has become a major player in basic research in France in the field of Genetics, and Cell and Developmental Biology. In the last 5 years, the size of IGDR has increased through the external recruitment of new CNRS, Inserm and university researchers and team leaders. At the moment, the IGDR consists of 21 research teams organized in 2 different departments (Cell Biology and Development, and Biology and Expression of the Genome) and 2 different programs (Biology of Human Pathologies, and Biology and Interdisciplinarity). The IGDR hosts 212 people, of which 129 are permanent staff. The IGDR hosts 4 main facilities, including the platforms of “Microscopy Rennes Imaging Center”, “DNA chips” platform, “H2P2 histopathology” and “CaniDNA CRB-Anim (PLIA1)”. It also benefits of the multiple platforms of the Federative Structure of Research Biosit.

### Management team

The research unit is managed by the director Ms Claude PRIGENT and the deputy director Mr Christian JAULIN. It will be managed in the new 5-year period (2017-2021) by Mr Reynald GILLET as director and Ms Marie-Dominique GALIBERT as deputy director.

### HCERES nomenclature

Principal:

SVE1\_LS3 Cell biology, Animal developmental biology

Secondary:

SVE1\_LS4 Physiology, Physiopathology, Endocrinology

SVE1\_LS2 Genetics, Genomics, Bioinformatic, Systems biology

SVE1\_LS1 Molecular biology, Structural biology, Biochemistry

### Scientific domains

All teams are dedicated to fundamental research mainly in the domains of genetics, cell biology, developmental biology, biochemistry, structural biology, microscopy and Interdisciplinary domains (physics, chemistry, mathematics, informatic). Main themes are concerned with cell polarity, cell division, membrane traffic, signalisation, RNA (stability, translation, splicing), epigenetics, gene expression, cancer and genetic diseases.

Unit workforce

Unit workforce	Number on 30/06/2015	Number on 01/01/2017
N1: Permanent professors and similar positions	38 (18.70)	37 (18.20)
N2: Permanent researchers from Institutions and similar positions	34 (33.60)	33 (32.60)
N3: Other permanent staff (technicians and administrative personnel)	52 (45.90)	53 (46.90)
N4: Other professors (Emeritus Professor, on-contract Professor, etc.)	3 (1.50)	
N5: Other researchers from Institutions (Emeritus Research Director, Postdoctoral students, visitors, etc.)	16	
N6: Other contractual staff (technicians and administrative personnel)	18 (13.70)	
N7: PhD students	29	
<b>TOTAL N1 to N7</b>	<b>190 (158.40)</b>	
Qualified research supervisors (HDR) or similar positions	51	

Unit record	From 01/01/2010 to 30/06/2015
PhD theses defended	49
Postdoctoral scientists having spent at least 12 months in the unit	38
Number of Research Supervisor Qualifications (HDR) obtained during the period	17

## 2 • Overall assessment of the unit

### Introduction

The Institute of Genetics and Development of Rennes (IGDR) is composed of 190 people and 21 different research teams organized in 2 different departments (Cell Biology and Development, and Biology and Expression of the Genome) and 2 different programs (Biology of Human Pathologies, and Biology and Interdisciplinarity). The unit is headed by Mr Claude PRIGENT as director and Mr Christian JAULIN as deputy director, and it will be headed in the new 5 year period (2017-21) by Mr Reynald GILLET as director and Ms Marie-Dominique GALIBERT as deputy director. All teams are dedicated to fundamental, research mainly in the domains of genetics, cell biology, developmental biology, and oncogenesis. As suggested by the 2011 AERES report, all IGDR teams are organized around a common scientific objective “the regulation, dynamics and robustness of cell division and identity” but using multiple scales, model organisms and scientific disciplines. As such, the IGDR has a clear objective to move towards excellence. The institute

is located in 2 different campuses within the University of Rennes 1, but is intending to relocate all groups in the health campus to increase internal cohesion. In this regard, regular seminars and social activities are being implemented to increase the integration of all IGDR's staff, and a series of seminars called "Frontiers in Biology" are being organized to attract renowned speakers and increase the international visibility of the unit. The IGDR is successfully recruiting excellent young and promising teams, some already at a productive stage. Most of the new recruitments are external and have been awarded prestigious ATIP-AVENIR as well as FRM, AICR and ERC Starting grants. Following the 2011 AERES review, the IGDR has been able to recruit foreign PhD students and post-docs and, most importantly, a group leader from abroad, Pei-Yun Jenny Wu. A Scientific Advisory Board, composed of internationally recognized scientists from outside France, contributes to the IGDR's scientific management through regular visits and institute mentoring. A number of excellent facilities contribute to the scientific success of all IGDR teams, by providing technical help and expertise in microscopy, functional genomics and histopathology.

### Global assessment of the unit

The Institute of Genetics and Development of Rennes (IGDR) consists of a mixture of new, young teams - some promoted from within and many recruited outside, from very good institutes in France or in Europe - and already established groups covering a wide-range of topics related to cell-biology, genetics, development and oncology with a strong emphasis on inter-disciplinary approaches. The national recognition of several IGDR teams and of the existing platforms offering access to state-of-the-art advanced microscopy, functional genomics and histopathology is clearly remarkable. However, the scientific production of the unit, including young promising team leaders funded by prestigious ATIP grants, is uneven and in certain cases is clearly discrete. Most, but unfortunately not all, IGDR teams are organized around a common scientific objective "the regulation, dynamics and robustness of cell division and identity", and the unit is clearly interdisciplinary as the teams are using multiple scales, a large variety of model organisms and a smart combination of scientific disciplines. Many IGDR teams are strongly implicated in teaching activities on the Health and Sciences campuses of the University of Rennes, thus increasing the visibility of the unit among the students and contributing to the selection of the best candidates to carry out PhD programs. The implication in teaching is, in several IGDR teams, too heavy and negatively impacts on their scientific production. Finally, the IGDR is partially located in, and thus well connected to, the Pontchaillou hospital - providing unique opportunities for transfers from the bench to the bedside. The unit is located in 2 separate campuses within the University of Rennes 1 and is intending to be unified in the Health Campus in the next couple of years. The bi-site localization has disturbed the cohesion of the IGDR unit.

### Strengths and opportunities in the context

The institute is organized around a common scientific goal and has been well guided by the current director in this regard. Some teams have high international visibility, and leading scientific initiatives have been taken with a strong impact at the national level. The attractiveness of the unit for promising young group leaders coming back from abroad or from very good institutes in France is attested by several Inserm-CNRS ATIP-AVENIR and ERC-granted groups.

The unit has set up active policies to financially support new teams that get extra money on the unit's budget and support from newly recruited or already existing research staff. This contributes to the attractiveness of the unit for young researchers.

A variety of model organisms are exploited in the institute (*Drosophila*, mice, dogs, nematodes...), with some competitive research axes, including new topics (membrane traffic & polarity, asymmetric cell division, synthetic biology, DNA replication, ubiquitination), and inter-disciplinary research (biophysics, image analysis, bioinformatics,...) with strong interface between biologists, physicists, clinicians and engineers.

The research unit benefits from state-of-the-art facilities (microscopy, functional genomics and histopathology) with very active implication of several PIs, researchers and engineers of the unit. A subsidized animal facility allows also the diversity of animal models to be developed.

The unit has developed links with the hospital, which provides the opportunity for medically relevant and translational research. The unit has also an important implication in teaching activity on the Health and Sciences campuses of University of Rennes and, in particular, in the training of PhD students.



### Weaknesses and threats in the context

After the creation of IGDR 5 years ago, the appeal, at the international level, for non-French group leaders and young researchers is still limited.

The ratio of permanent vs non-permanent researchers (e.g. post-docs) is unbalanced and too high and the turnover at researcher level is also low. The size of some of the teams is suboptimal, which may hamper achieving the proposed goals and reach and maintain visibility at the international level. In several teams, the ratio between researchers with teaching duties and those without is too high.

Funding visibility of some of the teams is low. The teams should be encouraged to secure reasonable funding and raise more external funding at the national and international levels (HSFP, ERC,...). A more active funding policy will also make teams more competitive in recruiting post-docs.

The overall production of the unit is good, albeit rather heterogeneous, among the different teams, in the quality and in the number of publications. A few groups are below the standards. A system of mentoring young group leaders is not formally established, and the scientific evolution of some of these teams is in danger.

The participation of team leaders and researchers in international meetings as invited speakers or active organizers is limited and there is clearly space for improvement here as well.

Internal scientific cohesion is not generalized, and bi-site localization of the IGDR teams impairs scientific communication among the unit members.

Interdisciplinarity of the IGDR teams is not reflected by the number and types of doctoral schools from which PhD and master students are selected.

### Recommendations

The transition between the current and future directors in heading the unit should be sped up in order to avoid any gap and uncertainty in the management of the research unit.

The IGDR should strengthen the focus on a scientific topic in the field of cell, developmental biology and genetics, as the reputation of the unit in these topics is getting reasonably high at the national, and even international, level. The institute should also increase its international visibility by organizing regular international meetings or workshops in the fields of cell biology, developmental biology and genetics.

A mentorship program to help group leaders, especially the youngest ones, should be established, thus increasing their scientific productivity and impact as well their success rates in getting national and international grants. This also concerns the researchers within teams who wish to assume team leadership either at the IGDR or in other units.

Resizing of the teams according to the scientific productivity and funding should be implemented, and the size and status of some very small teams developing technological improvements should be reinforced. Decision-making should be more transparent (resizing of labs, attribution of supporting personnel, finances...) and the communication between the directorship and the research and technical staff should be improved. The committee also encourages enhancing the internal cohesion of the institute by organizing annual scientific retreats and by increasing the occurrence of regular meetings.

The IGDR should be able to attract master and PhD students from different fields (e.g. Mathematics, Physics...) and not just those enrolled in the Doctoral School of Biology.