

FINAL RESUME ON THE RESEARCH UNIT  
IPPRITT - Individual profiling and prevention of risks with  
immunosuppressive therapies and transplantation

UNDER THE SUPERVISION OF THE  
FOLLOWING INSTITUTIONS AND RESEARCH  
BODIES:

Université de Limoges  
Institut national de la santé et de la recherche  
médicale - INSERM

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**EVALUATION CAMPAIGN 2020-2021**  
GROUP B



In the name of Hcéres<sup>1</sup>:

Mr Thierry Coulhon, President

In the name of the experts committee<sup>2</sup>:

Ms Lucie Delemotte, Chairwoman of the  
committee

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

<sup>1</sup> The president of Hcéres "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 experts committee". (Article 11, paragraph 2).

Tables in this document were filled with certified data submitted by the supervising body on behalf of the unit.

## UNIT PRESENTATION

**Unit name:**

Individual profiling and prevention of risks with immunosuppressive therapies and transplantation

**Unit acronym:**

IPPRITT

**Current label and N°:**

UMR INSERM 1248

**ID RNSR:**

200816497B

**Application type:**

Renewal

**Head of the unit (2020-2021):**

Mr Pierre Marquet

**Project leader (2021-2025):**

Mr Pierre Marquet

**Number of teams and/or themes:**

## EXPERTS COMMITTEE MEMBERS

**Chair:** Ms Lucie Delemotte, KTH Royal Institute of Technology, Solna, Suède

**Experts:** Mr Régis Bordet, Faculté de Médecine de Lille (representative of CNU)  
Mr Dario Cattaneo, Luigi Sacco University Hospital, Milano, Italie  
Mr André Pelegrin, INSERM Montpellier (representative of INSERM CSS)  
Ms Estelle Pujos-Guillot, INRAe Saint-Genès Champanelle (supporting personnel)

## HCÉRES REPRESENTATIVE

Mr Clair-Yves Boquien

## REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Ms Claire Corbel, Université Limoges  
Mr Dominique Cros, Université Limoges  
Mr Arnaud Garcia, CHU Limoges  
Ms Karine Gionnet, Délégation Régionale INSERM Nouvelle-Aquitaine  
Ms Marie-Josèphe Leroy-Zamia, INSERM  
Mr Pierre-Yves Robert, CHU Limoges  
Mr Richard Salives, Délégation Régional INSERM Nouvelle-Aquitaine

## INTRODUCTION

### HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The IPPRITT unit (UMR1248) appointed by INSERM and the University of Limoges since 2007, is located in a building named the CBRS (Centre de Biologie et de Recherche en Santé) hosting both the hospital clinical laboratories and the research units closely linked to some of them, as is the case for the UMR IPPRITT. The IPPRITT unit now occupies 2/3 of the second floor at the CBRS (1310 m<sup>2</sup>) and this will be increased to approximately 1431 m<sup>2</sup> by the end of 2024 as their nearest neighbors will be moving to the future extension of the CBRS, aimed to host all the OMEGA\_Health research teams currently on other sites.

### RESEARCH ECOSYSTEM

IPPRITT has been part of one of the five research Institutes at the University of Limoges, called GEIST (for genomics, Environment, Immunology, Health and Therapeutics), which will now evolve towards OMEGA\_Health and gathers the nine research teams working in the fields of health, life science or environment at the University of Limoges, as well as to the "Biologie-Santé" doctoral school (ED 615).

Since 2014, IPPRITT has been a founding member of the hospital university federation of transplantation (created in common by the university hospitals and Universities of Tours, Poitiers and Limoges, as well as AVIESAN, the French Agency for Life and Health Research). This Federation called "Survival oPtimization in ORgan Transplantation" (FHU SUPPORT) is coordinated by Mr T. Hauet (CHU Poitiers and U1082 INSERM) and the director of IPPRITT, Mr P. Marquet, is responsible for the Limoges center of the federation.

### HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

SVE Sciences du vivant et environnement  
SVE5

The unit carries out research in the field of pharmacology and transplantation.

### MANAGEMENT TEAM

Unit director: Mr Pierre Marquet.

### UNIT WORKFORCE

	<b>Active staff</b>	<b>Number 06/01/2020</b>	<b>Number 01/01/2022</b>
Full professors and similar positions		11	9
Assistant professors and similar positions		4	5
Full time research directors (Directeurs de recherche) and similar positions		0	0
Full time research associates (Chargés de recherche) and similar positions		1	2
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")		9	9
High school teachers		0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)		10	11
	<b>Permanent staff</b>	<b>35</b>	<b>36</b>
Non-permanent professors and associate professors, including emeritus		0	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)		0	
PhD Students		16	

Non-permanent supporting personnel	5	
<b>Non-permanent staff</b>	<b>21</b>	
<b>Total</b>	<b>56</b>	<b>36</b>

## GLOBAL ASSESSMENT OF THE UNIT

The IPPRITT unit conducts research on pharmacometrics and modelling, pharmacogenomics, and on biomarkers predictive of the pharmacokinetic (PK) and pharmacodynamic (PD) of immunosuppressive drugs with the aim to improve patient quality-of-life and graft survival in the context of kidney, liver, heart, lung and more recently uterus transplantation (emerging thematic). The unit is fully involved in the dynamics created around the pharmacology of immunosuppressive drugs, in terms of monitoring and development of pharmacodynamic biomarkers, with a transnosographic approach of transplantation.

IPPRITT has published 317 publications (140 were original scientific papers, 64 were reviews, consensus or guideline reports, 99 were clinical articles and 10 were opinions articles), the large majority of them had an IPPRITT member as first and/or last author in the top-rank journals in the fields of pharmacology (*Clinical Pharmacology and Therapeutics*, *Pharmacological Research*), clinical chemistry (*Clinical Chemistry*) and transplantation (*Kidney International*, *American Journal of Transplantation*, *Transplantation*). IPPRITT has an impressive number of collaborative articles with other national and international research teams (Czech Republic, Belgium, Norway, Germany, USA, Canada). Despite this overall remarkable publication output, research themes of the unit do not have the same quality of scientific production and international visibility, in particular, the topic "uterus transplantation" has weaker quality of scientific production and international visibility.

Fund raising capacity of IPPRITT is strong as illustrated by the high number of academic research grants as coordinator at international (outside Europe Algeria, Canada), European (BIOMARGIN-FP7 as coordinator, ROCKET from ERACoSysMed - Systems Medicine to address clinical needs - as partner), national (ANR JCJC, REXETRIS from Health Data Hub as coordinator, PHRCs), and local level and from foundations/charities.

The IPPRITT unit is recognized as one of the best European laboratories in the fields of pharmacometrics, clinical pharmacology and pharmacogenetics of immunosuppressive drugs with a multidisciplinary vision of the personalization of drug therapy in individualized organ transplant recipients. This is illustrated for example by the great success of their ISBA database constituted over the years, since 2005, used for clinical transfer of personalized immunosuppressive treatments with 9000 requests per year by transplantation teams worldwide. IPPRITT has also constituted two large database of kidney transplant recipients. On top of that, the unit has access to large cohorts of patients well phenotyped, with a large biobanking allowing PK/PD analysis and modeling, with a regional recruitment and international relationships in particular with Canada. The unit is exploiting a database of 40,000 patients, extracted from the national health insurance system, giving real opportunities to continue to transfer the clinical research, in real life and promotes clinical trials in both hepatic and kidney transplantation. The unit has five accepted patents and one filed patent and recently launched two spin-offs Optim'Care in 2018, to expand on the abilities of the ISBA website, including a score of graft survival and biomarkers, and InSiliBio in 2019, to valorize the unit's molecular modelling know-how. Moreover, IPPRITT has strong support from pharmaceutical laboratories (e.g., Roche, Astellas, Novartis-Sandoz, Chiesi, Astellas, MedIncell, InSiliBio and Optim'Care). During the current contract, the unit has achieved a remarkable transfer through the last three companies, in the form of molecular modelling expert services to the private sector with InSiliBio, telemonitoring and empowerment of transplant patients with Optim'Care, and a pharmacological innovation with MedInCell.

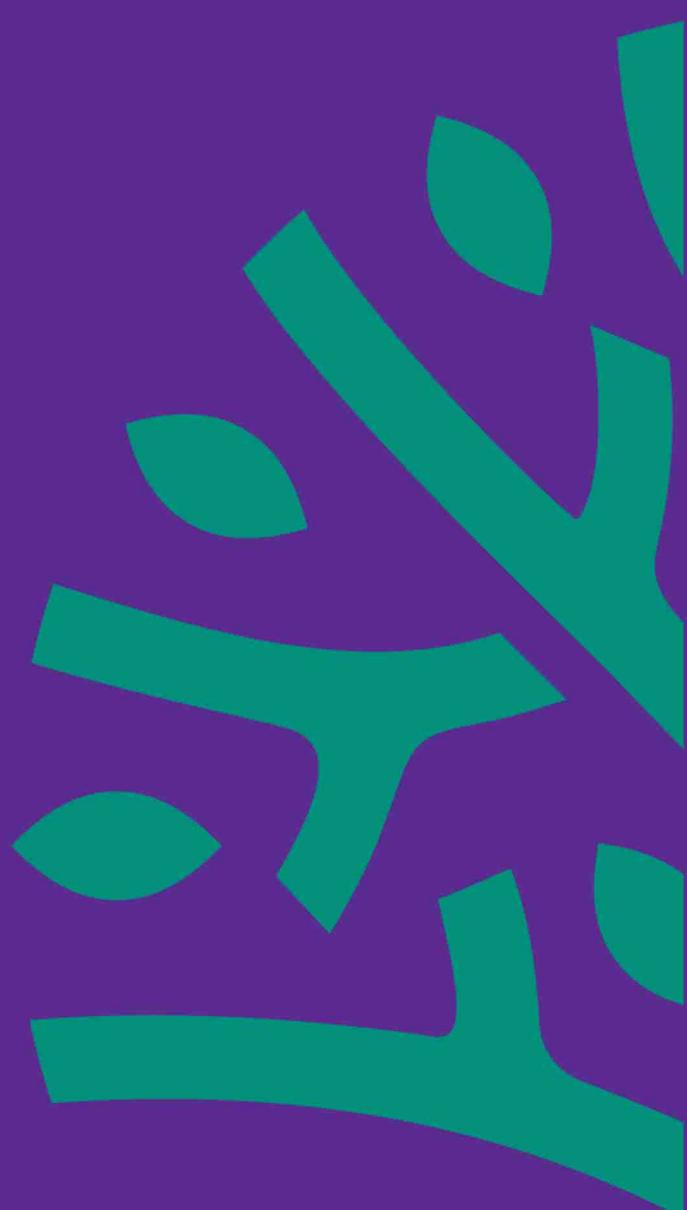
The unit has provided excellent training through research to 33 PhD students and 25 Master 2 students over the term. Fifteen PhD have been defended within 40 months and with two papers in average and continue on their professional life in academic research, industry or as civil servants. However, a few ended without publication.

The excellent organization and leadership of the unit supports the work in an efficient manner, including the implementation of a quality management system.

The overall coherence of the projects within the translational loop, and the quality of the individual projects make the unit's project for the upcoming period excellent. In particular, considering the identified risk of losing pharmacological specificity, new AI approaches for monitoring the benefit / risk balance of immunosuppressive drugs undoubtedly constitute the best way to revive the topic without losing its specificity. Finally, the track record of the unit and the quality of the research performed so far, gives confidence in the feasibility of this ambitious project.

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