

FINAL RESUME ON THE RESEARCH UNIT  
LITEC - Laboratoire Inflammation, Tissus  
Epithéliaux et Cytokines

UNDER THE SUPERVISION OF THE  
FOLLOWING INSTITUTIONS AND  
RESEARCH BODIES:  
Université de Poitiers

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**EVALUATION CAMPAIGN 2020-2022**  
GROUP B



In the name of Hcéres<sup>1</sup>:

Mr Thierry Coulhon, President

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

Mr Marc Vocanson, Chairman 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

<b>Unit name:</b>	Laboratoire Inflammation, Tissus Epithéliaux et Cytokines
<b>Unit acronym:</b>	LITEC
<b>Current label and N:</b>	EA4331
<b>ID RNSR:</b>	200815560H
<b>Application type:</b>	Renewal
<b>Head of the unit (2020-2021):</b>	Mr Franck Morel
<b>Project leader (2021-2025):</b>	Mr Franck Morel
<b>Number of teams and/or themes:</b>	1

## EXPERTS COMMITTEE MEMBERS

<b>Chair:</b>	Mr Marc Vocanson, INSERM, Lyon
<b>Experts :</b>	Ms Giulia Chinetti, Université Côte d'Azur (representative of CNU) Ms Sandrine Dubrac, Faculté de Médecine de Innsbruck, Autriche Ms Mei Li, CNRS/IGBMC, Illkirch Ms Véronique Montcuquet, Université de Paris (supporting personnel)

## HCÉRES REPRESENTATIVE

Ms Sophie Ezine

## REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Ms Hélène Costa, CHU Poitiers  
Mr William Couet, CHU Poitiers  
Mr Xavier Drouot, Faculté de Médecine/Pharmacie, Université Poitiers  
Mr Yves Gervais, Université Poitiers

# INTRODUCTION

## HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

The Inflammation, Epithelial Tissues and Cytokines Laboratory (LITEC / EA4331) was created in 2008.

LITEC is located on the site of the "Pôle Biologie Santé" (PBS) of the University of Poitiers (bringing together the majority of the biology/health teams of the two UFR: Fundamental and Applied Sciences and Medicine-Pharmacy) and near the CHU of Poitiers.

## RESEARCH ECOSYSTEM

The LITEC is part of the Institute in Health Biology of Poitiers (IBSP) created in 2019 by the university, and which includes three INSERM units (UMR-S1070 Pharmacology of anti-infectives, UMR S1082 Ischemia-reperfusion in organ transplantation and UMR-S1084 Experimental and clinical neurosciences), two CNRS units (ERL CNRS 7003 Signaling and membrane ionic transport and UMR CNRS 7267 Ecology and biology of interactions, water microbiology team) and an "Équipe d'Accueil" (EA3808 Neuvacod). From 2022, the IBSP will be reinforced and articulated with the creation of the health campus by the University of Poitiers.

The LITEC benefits from the imaging (ImageUP) and animal facility (Prebios) platforms grouped in a service unit of the PBS. This service unit has facilitated, during the last mandate, the acquisition by the LITEC of large equipment with CPER-FEDER funds.

The LITEC has established long strong links with the clinical services and laboratories of the CHU of Poitiers, including the departments of dermatology, plastic surgery, pediatric surgery, hepato-gastroenterology, rheumatology, oto-rhino-laryngology, and the immunology and inflammation, pathological anatomy, cytology and virology laboratories. Several clinicians-researchers of these departments and laboratories are members of the LITEC, where they coordinate and implement clinical research projects at the interface of LITEC fundamental research projects, with the support of the research department of the Poitiers CHU and the Aliénor foundation. Of note, some of the LITEC investigators use the virology laboratory of the CHU, where they perform experiments requiring an NSB3 installation.

The LITEC members participates since 2018 to different regional research networks including "Oncosphere", the GDR3625 MuFoPAM "MultiFunction of AntiMicrobial Peptides, the FÉRI Infectious Disease Research Federation (FED 4225) and the "Recomposed Human" network.

## HCÉRES NOMENCLATURE AND THEMATICS OF THE UNIT

SVE3

LITEC implemented three different research axes: (i) skin inflammation (Axis 1), (ii) skin infection (Axis 2) and translational research (Axis 3).

Hence, the research topics of the LITEC consist in studying the role of cytokines (Oncostatin M (OSM), IL-1, IL-17, IL-22, IL-33, IL-34) and infectious agents (bacteria including *Helicobacter pylori*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*; flavivirus including West Nile or Usutu viruses; and their respective PAMPs) in the induction of skin inflammation (psoriasis, atopic dermatitis, excessive scars, epidermoid carcinomas), and the interactions between keratinocytes and inflammatory cells.

LITEC members are also studying the fate of the inflammatory response: either its resolution, by focusing on the anti-bacterial and anti-viral defense mechanisms (TLRs, interferon stimulated genes, antimicrobial peptides, ADP-ribose-polymerases), and healing, or its chronology, by deciphering the contribution of different cytokines in the vicious circle installed, and their consequences on the local or systemic evolution (liver fibrosis) of this inflammation.

Finally, they are implementing and coordinating translational research programs aimed at developing new keratinocyte cell therapies for burned children, identifying predictive biomarkers of response to biotherapies (anti-TNF $\alpha$ , anti-EGFR), or developing new anti-cytokine therapies (anti-OSM) for the treatment of inflammatory skin diseases (psoriasis) and cancers.

## MANAGEMENT TEAM

Mr Franck Morel is the director and Mr Jean Claude Lecron the deputy-director for the current mandate.

For the next mandate, the director Mr Franck Morel will be associated to Mr Charles Bodet.

## UNIT WORKFORCE

<b>Name of the unit : LITEC</b>		
<b>Active staff</b>	<b>Number 06/01/2020</b>	<b>Number 01/01/2022</b>
Full professors and similar positions	8	8
Assistant professors and similar positions	7	8
Full time research directors (Directeurs de recherche) and similar positions	0	0
Full time research associates (Chargés de recherche) and similar positions	0	0
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	0	0
High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	4	6
<b>Permanent staff</b>	<b>19</b>	<b>22</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	8	
Non-permanent supporting personnel	3	
<b>Non-permanent staff</b>	<b>11</b>	
<b>Total</b>	<b>30</b>	<b>22</b>

## GLOBAL ASSESSMENT OF THE UNIT

The LITEC unit activities encompass research on (i) skin inflammation and (ii) skin infection themes.

The research activities of LITEC deal with the field of cytokines and their biological activities on human keratinocytes in various skin inflammatory diseases (psoriasis, atopic dermatitis, abnormal scarring process, cutaneous carcinomas). More recently, the unit activities were also re-centered on the role of keratinocytes and keratinocyte-derived mediators in anti-bacterial and anti-viral defense mechanisms (flavivirus infection, *Helicobacter pylori*, *Staphylococcus aureus* or *Pseudomonas aeruginosa* infections).

The research carried out by the unit is of biomedical importance by exhibiting different fundamental, translational and valorization facets, such as the promotion of research in the fields of (i) cell therapy with keratinocyte grafting, (ii) characterization of predictive biomarkers of response to biotherapies, (iii) prospects for new anti-cytokine or antimicrobial peptides for the treatments of inflammatory skin diseases and (iv) cancers.

During the five-year assessment period, the LITEC has produced a significant number of articles (38 research articles, 6 reviews and 30 clinical articles), published for some of them in journals with relatively high profile such as *Oncotarget*, *British Journal of Dermatology*, *Journal of Clinical Medicine*, *Journal of Immunology* or *Journal of the National Cancer Institute*. However, the unit has not published any high-profile primary research articles over the course of this mandate.

Grants obtained as PI were mainly regional and national (ANR JCJC, PHRC, foundations, charities...), and three of them were obtained at the international level (ECO-SUD cooperation, ...). In the same line, although the unit's scientists participated in scientific conferences, these invitations for oral presentations were mainly to local or national conferences. Hence, although the unit has an excellent regional and very good national recognition,

it fails to radiate beyond the national borders. Higher ambitions in scientific objectives/projects should help the unit to (i) compete with international projects, (ii) take the lead of French and European grants, (iii) publish in high profile journals and (iv) acquire a supra-national reputation.

Moreover, the scientific outputs of LITEC were supported by a very good to excellent valorization activity in the form of patents (two patents accepted, including one under license), hospital clinical research programs (the unit coordinated and implemented 5 mono/multicenter clinical research studies) and industrial contracts (including a cooperation agreement with the company Bioalternatives and the University of Poitiers). Furthermore, several members of the LITEC actively interface with general public, mainly during COVID-19 pandemic, through conferences, media interviews, and high school and college events.

The unit was also strongly involved in research training, supervision of several PhD and numerous Master students as well as in the organization of Biology-Health Master's program. Despite a very good number of publications per PhD student, the number of defended theses was low (5) compared to the number of members having an HDR (10). Overall, the training through research activity of the unit was very good but it could be further improved by diversifying the profile of PhD students that are trained, toward more international and basic scientists interested in fundamental research in cell and molecular biology.

LITEC encompasses a dynamic and close-knit team, with solid infrastructure, and a good local attractiveness, as evidenced by regular recruitments of young clinicians. The unit has also increased the number of technical staff to maintain technical competence. Overall, the staff feels happy and supported by the management team, which gives them the possibility to develop and/or contribute to multiple research projects, thus promoting the creativity of the group. Science and laboratory life seem then effectively combined, even if this would benefit from a more stimulant environment in term of internal and external communication (intranet, newsletter, twitter account, seminars with invitations of national or international researchers, annual symposium, etc.).

The proposed project for the next five years is based on the recently published and ongoing work of the team, and relies on established expertise in several fields including innovative and complementary *in vitro* (2D/3D) skin models, reference skin inflammation models in mice, as well as translational material (biopsies, sera, blood cells) from patients collected from several clinical cohorts. To this end, the unit will capitalize on the strong partnership established with the CHU of Poitiers and recent collaborations established with academic or industrial partners. Overall, the project is ambitious and multidisciplinary. It covers several original and specific themes and has very good fundamental and translational perspectives. Nevertheless, the scientific strategy could benefit from a lesser dispersion of research focuses and of working forces, and should avoid the maintenance of small research groups with limited impact in terms of scientific outputs and publications. LITEC members are strongly encouraged to establish bigger research groups, united around a limited number of research topics. The synergy of competences, efforts and ideas should help the LITEC to gain in visibility locally, nationally and internationally. By bringing its research to a higher level via the incorporation of state-of-the-art techniques associated with mechanistic and functional assays, LITEC will better resist the upward competitiveness of scientific research and increase the resilience of the structure.

The lack of administrative support represents a major threat for the development of the unit. The labelling of the unit by an EPST such as INSERM could be a major asset for the development of the unit. This should be considered by the unit, and a timely and appropriate action plan should be discussed and established in close collaboration with the university and hospital management bodies. Acquiring such a label would help to initiate a virtuous circle, ultimately enabling the recruitment of permanent scientific, fundamental researchers and international postdoctoral fellows, and facilitate applications for funding, fellowships or publications in high-profile journals.

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