CIIL
Center for Infection and Immunity of Lille

NEWSLETTER

#8 | October 2022

In this new academic year, we are happy to welcome 3 new scientists at the CIIL. The first is Fernando Real, a young CNRS researcher, who decided to move from Paris to Lille to develop his scientific project. Currently, he is hosted in my team until he has secured financial support for his projects to be recognized as an emerging team. The second is Anne Rogel, a Junior Professor recently recruited at the Faculty of Pharmacy of the University of Lille, who is developing her research project in the team of Jean-Claude Sirard. This team has also recently been joined by Farouk Allouche, a Junior Professor of the Catholic University of Lille who is also presented here. In this issue, we also present the profiles of Sabrina Marion, Ruben Hartkoorn and Laurence Cocquerel, 3 researchers who actively contribute to the CIIL project.

Jean Dubuisson

Profiles of our researchers

Fernando REAL
CNRS Researcher

How microbes establish safe niches in host organisms, subverting their functions and remaining silent and undetected by host immune defenses? How these processes can be targeted for a definitive cure of chronic infectious diseases? With these questions in mind, I have conducted my scientific career working on research strategies to assess the mechanisms of pathogen persistence in host cells, focused on immunology and cell biology of the interplay between myeloid cells and the ntracellular pathogens Leishmania spp., HIV-1 and SARS-CoV-2.

Under the guidance and mentorship of Dr. Michel Rabinovitch (former group leader in Rockefeller University, US and Institut Pasteur, Paris, France) my journey into the realm of pathogen persistence started at the Federal University of Sao Paulo (UNIFESP), Brazil, approaching macrophages as durable hosts for protozoan parasites of the genus Leishmania. These parasites are internalized by host macrophages where the parasite multiplies sheltered within phagolysosome-like structures called parasitophorous vacuoles. I have investigated the mechanisms controlling the biogenesis of these structures, connecting vacuolar ATPases to parasite intracellular survival.

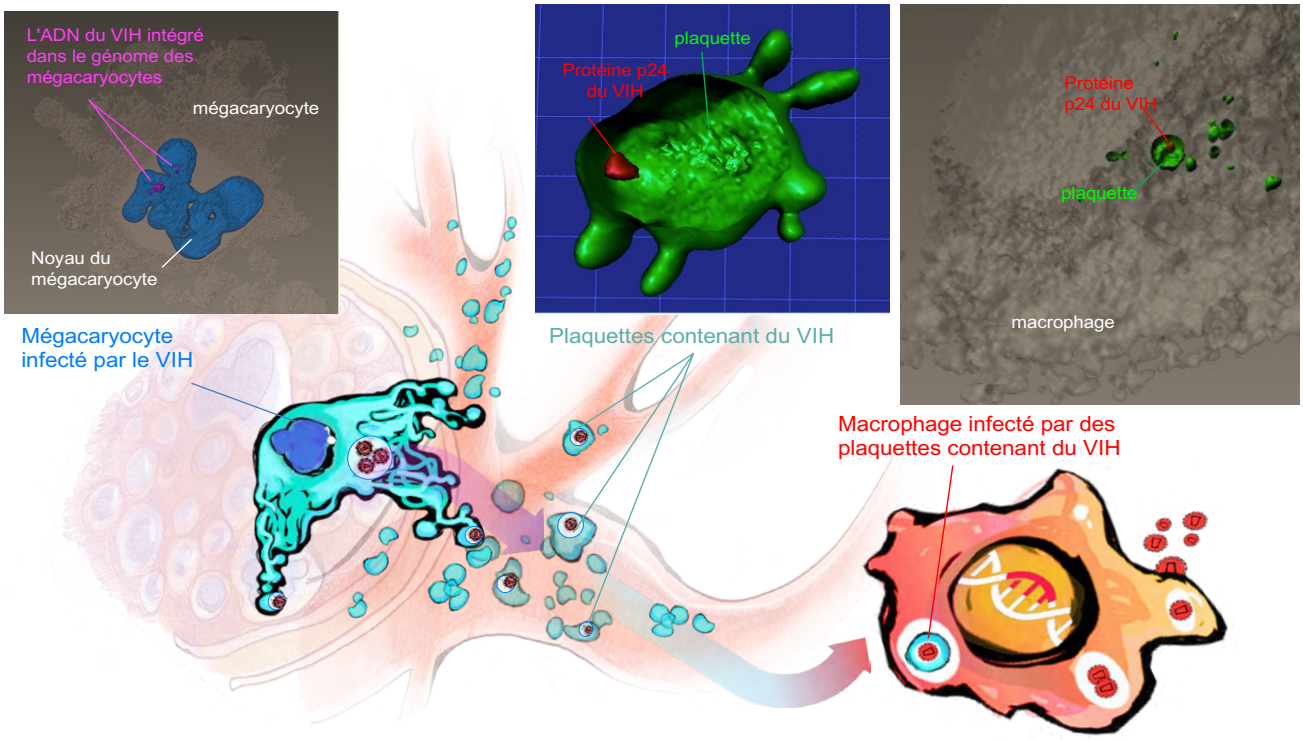
After dedicating the years following my PhD thesis as principal investigator in the study of persistent infection of *Leishmania* parasites in macrophages, I took a challenging step toward the HIV field, concentrating my efforts to understand the establishment of macrophages as cell reservoirs for this virus in the research group directed by Dr. Morgane Bomsel (Institut Cochin, Paris, France). We have demonstrated that macrophages are HIV-1 reservoirs in vivo in genital mucosal tissues, and, more recently, that this macrophage reservoir is maintained by inflammatory macrophage metabolism. Using sophisticated live imaging systems and tissue in vitro reconstructions, we have also observed that HIV reaches these mucosal macrophages via virological synapses formed between an infected CD4+ T cell and epithelial cells covering the macrophage-rich stroma.

My most significant scientific contribution so far in my career came next, when alternative pathways employed by HIV to reach tissue-resident macrophages were envisioned: we have demonstrated that HIV-1 is sheltered by platelets in vivo in HIV-infected individuals under antiretroviral therapy, and that these HIV-containing platelets transfer HIV infection to macrophages in vitro. Very importantly, I have discovered that individuals presenting HIV-containing platelets are immunological nonresponders (InR), i.e., display sustained poor CD4+ T cell recovery despite antiretroviral therapy adherence, linking presence of virus in platelets to secondary immunodeficiencies.

The source of HIV-containing platelets and platelet-mediated immunological failure in HIV/AIDS is potentially infected megakaryocytes, bone marrow resident cells that produce platelets and that we have found hosting persistent HIV in vivo. I'll investigate this hypothesis and further mechanisms

controlling the subversion of megakaryocytes in long-term host cells for HIV-1 and SARS-CoV-2 now as a researcher of the CIIL and in the context of a new team I intend to build. Platelets and megakaryocytes are largely neglected viral hideouts that must be tackled in order to develop improved antiviral therapies aiming at restoring imm nocompetent status and quality of life of individuals presenting viral-induced long-term immune deficiencies.

Transfer of HIV from platelets to macrophages in vitro. (A and B) Representative confocal microscopy images of HIV-containing platelets interacting with macrophages (MΦ) in vitro after immunostaining for platelet marker CD41 (green) and HIV capsid protein p24-Gag (pink); image is merged with phase-contrast image. White arrowheads show labeled virus within platelets. Image insets show three-dimensional reconstructions or projections in xy, yz, and xz dimensions for HIV-containing platelets. Images are representative of five different individuals. Scale bars: 5 µm.



Anne ROGEL
Junior Professor at the University of Lille

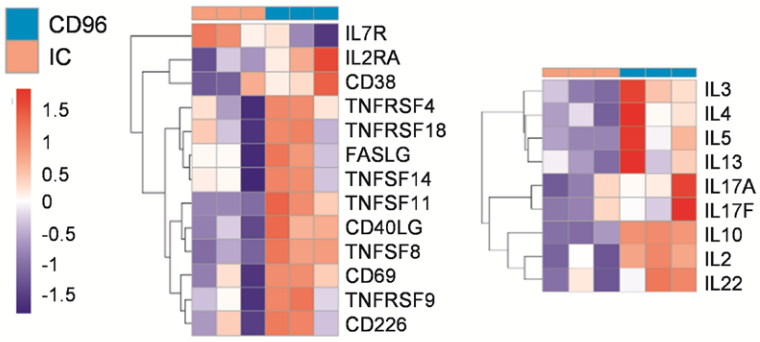
After completing a PhD in Immunology in Dr Nathalie Labarrière's team at the "Centre de Recherche en Cancérologie Nantes-Angers", under the s pervision of Prof. François Lang, I joined the Antibody and Vaccine Group in the School of Cancer Sciences at the University of Southampton (UK) in 2012, to work with Prof. Aymen Al-Shamkhani and Prof. Mark Cragg. In September 2022, I was appointed as lecturer/associate professor in Immunology at the Faculty of Pharmacy in Lille and I will conduct my research in the "Bacteria, Antibiotics and Immunity" team led by Dr Jean-Claude Sirard.

To date, my research has focused on investigating the cellular and molecular mechanisms that govern the activation and differentiation of T cells, in order to optimise T cell-based cancer immunotherapies. Indeed, the ability of T cells to recognise and kill cancer cells is now well established, but tumour cells often evade recognition by the immune system. Cancer immunotherapy strategies therefore aim at restoring or reinforcing the ability of the immune system to eliminate tumour cells.

During my PhD, my work on the characterisation of CD4+ T cell responses against the melanoma antigen MELOE-1 and on the presentation of CD4 and CD8 T cell epitopes by dendritic cells allowed me to identify a long peptide derived from MELOE-1 with a strong immunostimulatory potential for melanoma vaccination. Moving to the University of Southampton, I then studied cell-surface immunoreceptors and signalling pathways regulating the activation and differentiation of CD8+ T cells. Using experimental immunisation models in mice and single-cell RNA sequencing methods, we demonstrated that Akt/PKB activity is essential for the generation of a continuum of cell phenotypes required to ensure optimal protective immunity. Notably, our work identified Akt as a key signalling node in the development of protective memory CD8+ T cells and revealed an important role for CXCR3lo CD43lo effector-like memory cells in tumour surveillance. In parallel, I contributed to the study of costimulatory molecules from the TNFR and Immunoglobulin superfamilies, and to the

development of monoclonal antibodies targeting them. Notably, I collaborated with Talix Therapeutics to develop antibodies targeting CD96, a member of the immunoglobulin superfamily mainly expressed by T cells, NK and NKT cells, for which both inhibitory and stimulatory functions have been ascribed. Using a panel of engineered antibodies, we identified a T cell stimulatory activity for anti-CD96 human IgG1 antibodies, potentiated by Fc-gamma receptor I trans-crosslinking. We showed that anti-CD96 antibodies acted directly on peripheral human T cells and augmented gene expression networks associated with T cell activation, leading to proliferation, cytokine secretion and resistance to regulatory T cell suppression. Furthermore, anti-CD96 antibodies activated tumour-infiltrating T cells from HPV+ head and neck squamous cell carcinomas in vitro, thus highlighting their potential in cancer immunotherapy.

In Dr Sirard's BAI team, I will use my expertise in T cell immunology to develop a project on the role of resident memory CD4+ T cells in bacterial lung infections, in particular pneumococcal infections, and in immune responses induced by novel mucosal vaccines. Several lines of evidence indicate that resident memory CD4+ T cells can mediate local long-term heterotypic protection in various infections, but the origin and the mechanisms that regulate the generation and maintenance of these cells are poorly understood. Using complementary in vivo and in vitro models and single cell RNA-Seq and TCR repertoire analysis, we will study the molecular and cellular mechanisms regulating the development of protective resident memory CD4+ T cells in nasal and lung mucosa, in order to optimise the development of mucosal vaccines against bacterial infections.



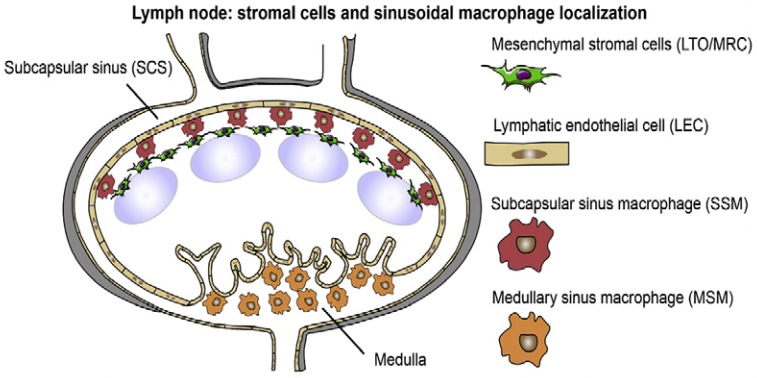
RNA-Seq analysis was performed on purified CD3+ T cells isolated from the blood of 3 healthy donors and stimulated for 6 hours with an anti-CD3 antibody in combination with a novel anti-CD96 antibody or an isotype control (IC). Heatmaps illustrate differential gene expression of selected activation markers (left panel) and cytokines (right panel). (Rogel et al, JCI Insight, in press)

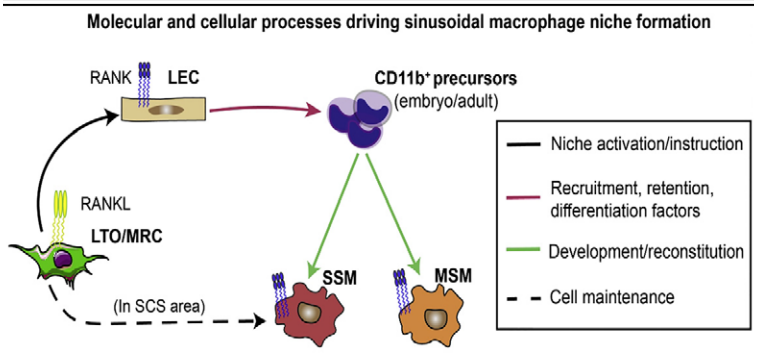
Farouk ALLOUCHE

Junior Professor
at the Catholic University of Lille

After a bachelor degree in Genetics at the university of Tours, a master degree in molecular and cellular genetics at the university of Bordeaux and a master in physiopathology at the university of Strasbourg, I joined the Institute of Molecular and Cellular Biology in Strasbourg in 2014 as an IdEx PhD fellow in immunology.

At Chris Mueller's Lab, I worked on the role of Rankl, a member of the TNF super family, in the differentiation of B cell associated stroma in secondary lymphoid organs, and more precisely in marginal reticular cells (MRCs), a subpopulation of fibroblastic cells positioned in close vicinity to B cells and suggested to be precursors of follicular dendritic cells (FDCs). During my PhD, in order to question the role of RANKL expressed by the MRCs, we generated mice with conditional RANKL deficiency in the stromal compartment. We found that the B cell follicle structure was disrupted and FDC network formation was reduced. Although RANKL was not required for MRC formation, it was necessary for the expression of B cell attracting chemokine CXCL13. Among the TNFRSF members known to control CXCL13 expression and FDC formation, we found that TNFR1 was significantly reduced in the RANKL cKO mice. Thus, we suggested a role of RANKL through TNFR1 signalling in humoral immune response.





Moreover, during my PhD, I significantly collaborated to other projects that helped highlighting the RANKL signalling in lymph node, namely by regulating the maintenance of lymphatic

endothelial cells (LECs), another subpopulation of stromal cells expressing RANK, through LTbR signaling. We also showed that this RANK-RANKL signaling through LECs is crucial for Subcupsular sinus macrophages differentiation and reconstitution after inflammation.

After my PhD, I enhanced my involvment on higher education and research policy at different levels, mainly through my action as administrator of the European Council of Doctoral Candidates and Junior Researchers and as observer member of the steering committee of Educational Policies and Practices of the Council of Europe where my major interest was into open science and gender equality.

In 2020, I joined Lille Catholic University as assistant professor, academic coordinator of international relations in sciences and disabilities' officer, and very recently, I joined Jean-Claude Sirard's team where my major interest is the study of myeloid cells in the context of bacterial infection in order to identify new therapeutic targets to counter antibiotic resistance. Today, I am strongly convinced that my research priority as a scientist is first and last to contribute to the collective effort to enrich human knowledge in an ethical, open, and integrated approach with and for our society.

Sabrina MARION
Junior Professor at the University of Lille

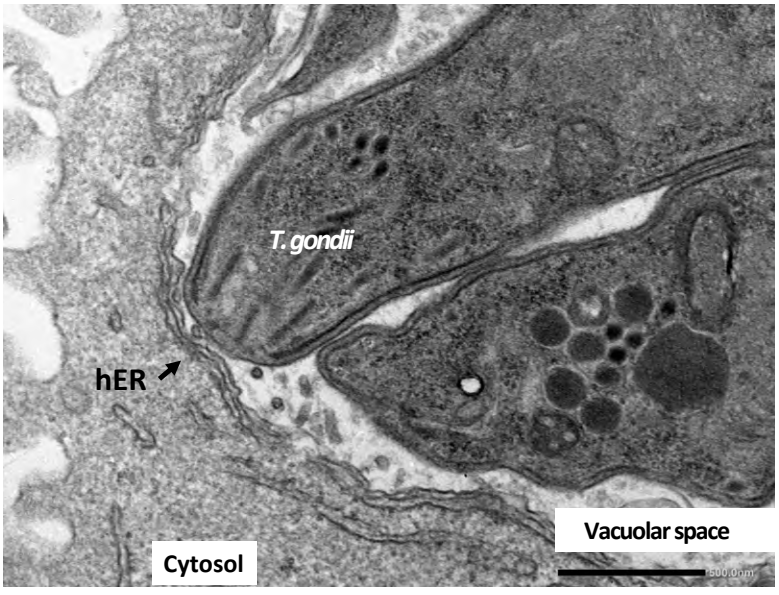
During my PhD at the Pasteur Institute of Paris (Nancy Guillen's lab), I was interested in the mechanisms regulating phagocytosis of human cells by the extracellular protozoan parasite Entamoeba histolytica. After obtaining a grant from the European Research Council, I joined the lab of Gareth Griffiths for a post-doc at the European Molecular Biology Laboratory (EMBL), Heidelberg (Germany). My research focused on the mechanisms regulating the fusion of phagosomes and lysosomes in macrophages in the context of Mycobacterium infection as well as during the internalization of beads coupled to phagocytosis-stimulating factors. I then joined Florence Niedergang's lab at the Institut Cochin (Paris) to pursue my research on the mechanisms regulating phagocytosis in macrophages. In collaboration with Margot Thome's lab (EPFL, Lausanne), we unraveled a novel function for Bcl10, an activator of the NF-κB signaling pathway, in the modulation of exocytosis and actin cytoskeleton dynamics during phagocyte cup formation. This work opened my eyes to something that has puzzled me ever since: immune cells have to initiate and regulate innate responses at the right place and the right time! And for that, intracellular organelles have evolved as intelligent sensors of cellular homeostasis and true signaling platforms for the induction of innate responses during infection. Before to come to Lille, I joined for a short post-doc the lab of Morgane Bomsel (Cochin Institute, Paris) working on how macrophage polarization impacts on HIV replication vs latency using notably tissues from patients under antiviral therapy. This short experience taught me that working with patient samples is demanding but really valuable to understand the complexity of interactions that occur in a whole tissue/organism.

I have been recruited at the CIIL in 2013 (on a MCU/Chaire d'excellence CNRS position) in the lab « Biology of Apicomplexan Parasites » directed by Jamal Khalife to work on *Toxoplasma gondii*, an obligate intracellular parasite causing toxoplasmosis. Since my arrival, I have initiated research projects aiming to identify the mechanisms by which T. gondii secrete virulent factors and on the modulation of host responses. We currently study how changes in ER homeostasis induced by T. gondii impacts on dendritic cell responses (in collaboration with Sophie Janssens, VIB, Ghent and Nicolas Blanchard, Infinity, Toulouse). We were able to demonstrate that the IRE1 pathway of the Unfolded Protein Response (UPR) regulates the immunogenic maturation of cDC1, including their expansion, secretion of pro-inflammatory cytokines and cross-presentation to CD8+ T cells of parasite antigens. Thus, induction of IRE1 in cDC1

is essential to protect mice during the acute phase of the infection by restricting parasite dissemination. Recently funded by the ANR and the IPL, we are currently investigating the mechanisms involved in these processes, notably how the cross-talk between the IRE1 pathway and change in DC metabolism impacts on innate responses (Coll. David Dombrowicz-U1011, Lille).

In addition, we also initiated a project on chronic toxoplasmosis. We are interested in understanding how neuro-inflammation triggered during chronic cerebral toxoplasmosis impacts on neuro-degeneration in WT mice and in a mouse model of Alzheimer's disease (AD) (Collaboration David Blum, UMR S1172, CHRU Lille). We were able to demonstrate that chronic toxoplasmosis strongly exacerbates Tau protein phosphorylation and aggregation in the hippocampus (HPC) of infected mice. Interestingly, we found that the magnitude of inflammatory changes induced by cerebral toxoplasmosis in WT animals was particularly enhanced under the AD background, notably within microglia. We currently continue the project (ANR NiTenDo) to identify which inflammatory pathways are key to induce neurodegenerative processes, focusing on glial cell responses.

What I love about research are transdisciplinary and collaborative projects. Throughout my career, I had the opportunity to work with physicists, chemists, scientists working on metabolism and neurosciences. I also had the opportunity to work on different pathogens (bacteria, viruses and parasites). Overall, this has been a challenging but extremely enriching experience for me.



Ruben HARTKOORN
INSERM researcher

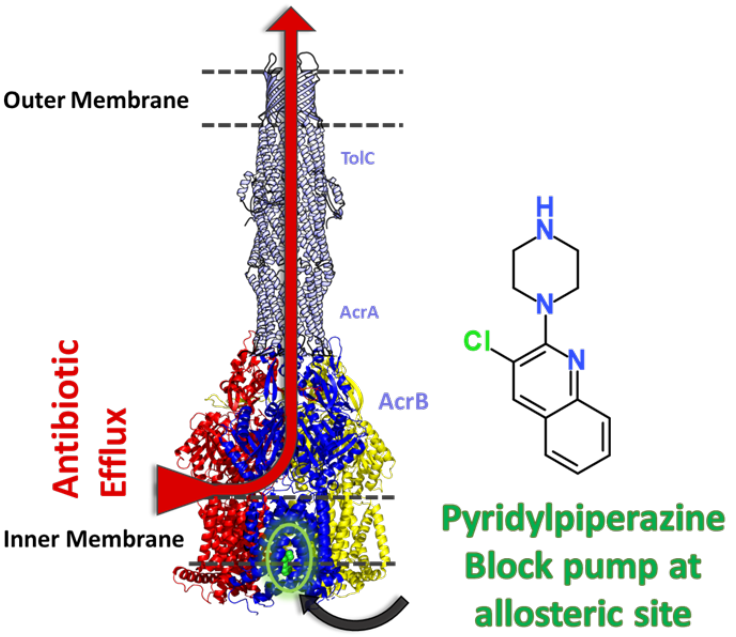
My childhood growing up in sub-Saharan Africa greatly fed to my passion to studying infectious diseases and how to combat them. To learn how medicines/drugs function, I studied Pharmacology and therapeutics at the University of Sheffield, UK (BSc), and a PhD investigating the impact of human drug transporters on the pharmacology of anti-HIV and anti-tuberculosis drugs. Seduced by the beauty and complexity of antibiotic drug discovery and development, I joined the outstanding tuberculosis research team of Prof. S. Cole, then at the EPFL in Lausanne (Switzerland). My postdoctoral research, amongst other things, allowed me to immerse myself in collaborative, multidisciplinary discovery and development of novel anti-tuberculosis drugs, with a particular interest in understanding how these novel antibiotics molecules function. Following a short, but enriching research project on drug R&D for Toxoplasma gondii and Plasmodium falciparum parasites under the direction of Prof. D. Soldati-Favre at the University of Geneva, I was able to start my own research group at the CIIL thanks to the ATIP Avenir program for young group leaders in 2016.

The research conducted in the CBA Lab (Chemical Biology of Antibiotics) headed by Dr Hartkoorn, aims to enrich antibiotic drug development and impact the ever-increasing burden of antibiotic drug resistance. This multidisciplinary research is often born out of discoveries in basic chemistry and biology that are characterized, optimized and eventually developed into potential therapeutics. In the ethos of such research, we are proud to collaborate with local and international experts in chemistry, medicinal chemistry, structural biology, NMR, EPR, molecular dynamics simulation and drug development teams, to enrich research and to attain the maximal potential from our discoveries. As an insight into our current research programs, a number of projects are summarized below.

With the ambition of improving antibiotic penetration into bacteria, we work on an ERC-COG funded research program named AntibioClicks. This project investigates the design and synthesis of Trojan horse antibiotics, where the bacteria are 'tricked' into actively taking up the antibiotic molecules. The basis of this research originates from discoveries made in the lab on molecules produced by soil bacteria. By studying some of these molecules the team discovered a novel mechanism by which siderophores (iron scavenging molecules) and antibiotics could be linked together to generate conjugated molecules that were actively taken up by the bacteria through its iron scavenging

transporters. Work now investigates how this conjugation can be exploited to design and synthesis custom siderophore – antibiotic conjugates to be activity taken up by specific bacteria of interest, particularly antibiotic resistant pathogenic Gram-negative bacteria and Mycobacterium tuberculosis. This research is currently being developed by postdoctoral researchers in organic chemistry, Iullia Ustimenko and Ravil Petrov, and microbiology, Ernesto Anos Carbonell and Thibault Caradec, with additional valued support from Xavier Trivelli for NMR structural characterization.

With a similar objective of improving antibiotic accumulation in bacteria, we are also heavily involved in the collaborative development of a novel class of efflux pump inhibitors, named pyridylpiperazines. In a French-German-Italian collaboration named EFFORT (ANR FR-DE), this research brings together medicinal chemists (headed by M. Flipo at the University of Lille, U1177), structural biologists (Prof. M. Pos and Prof. A. Frangakis at the University of Frankfort) and experts in molecular dynamics (Prof. A. Vargiu, University of Cagliari) We showed that pyridylpiperazines act through a unique and potent mechanism of efflux pumps inhibition, and are able to prevent the expulsion of a plethora of antibiotics by Gram-negative bacteria. Research is now focused on the further development

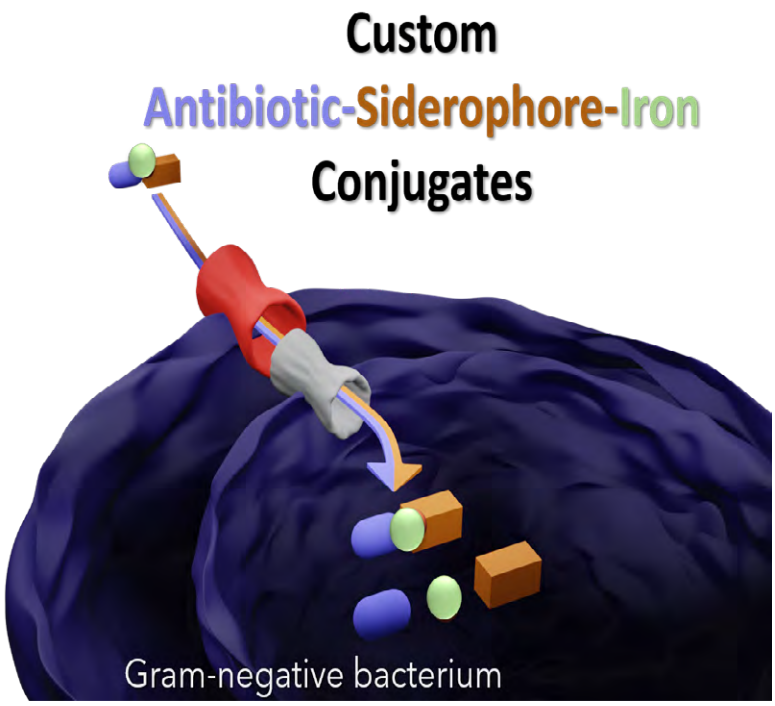


of these inhibitors to become clinical candidates to boost antibiotic activity for the treatment of Gram-negative bacterial infections. In the CIIL this work is being driven by Juan Carlos Jimenez-Castellanos, Elizabeth Pradel and the recent support of Laurye van Maele (Sirard Team).

With the aim of discovering and developing new antibiotics to fight drug resistant tuberculosis, collaborative research with B. Villemagne and Prof. N. Willand (University of Lille, U1177) has led to the discovery of unique and novel anti-tuberculosis molecules named TricyclicSpirolactams. Research in the lab has validated that these compounds target the electron transport chain of M. tuberculosis, and in collaboration with L. Kremer (University of Montpellier) it has been demonstrated that these molecules are able to protect zebrafish from an infection of Mycobacterium marinum. Research is now focused on the further development of this novel class of anti-tuberculosis compounds towards pre-clinical drug candidates for the treatment of drug sensitive and drug resistant tuberculosis.

Finally, an important aspect of innovation is the continued basic science research to discover new potential strategies to develop. To provide a glimpse of this, we are actively investigating the potential of forcing Gram-negative bacteria to bioactivate an otherwise inactive prodrug, in effect forcing them to committing suicide. This research is being developed by Thibault Caradec, in collaboration with Nicolas Willand (University of Lille, U1177), Alain Baulard (CIIL) and Giuseppe Sicoli (LASIRE, Univ Lille), and is uncovering promising findings that may allow for future repurposing of antibiotics.

With many projects running, the CBA lab is always open to considering candidates with a passion for antibiotic drug discovery and development, beit for an internship, PhD or postdoctoral position.

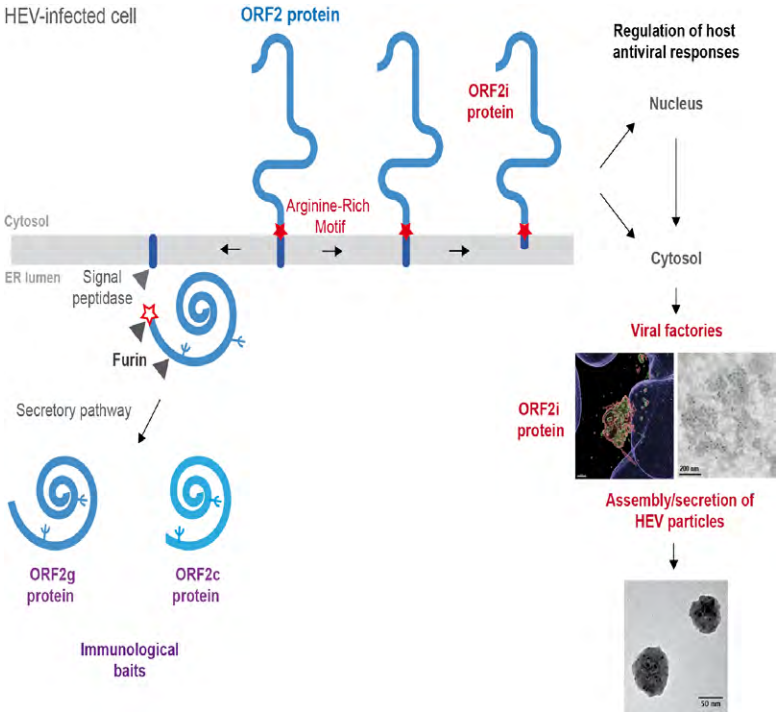


® Dr. T. Caradec, CBA, CIIL

Laurence COCQUEREL
CNRS senior researcher

I started my career with a PhD in Fundamental Virology (Sorbonne University, Pasteur Institute, Paris) in the laboratory of Jean Dubuisson on the characterization of the transmembrane domains of hepatitis C virus (HCV) E1 and E2 envelope glycoproteins. At that time, the mechanisms of HCV entry into its target cells, the hepatocytes, were almost unknown. Nevertheless, CD81, a tetraspanin discovered in 1990 by Prof. Shoshana Levy, had been identified as an essential cellular factor for HCV entry. In 2001, I joined the laboratory of Prof. Shoshana Levy (Stanford University, USA) to work on the interaction of HCV envelope glycoproteins with CD81. During this period, I also accumulated results showing that in some cells, HCV entry was blocked despite CD81 expression. When I returned to France in 2003, I came back to Jean Dubuisson's laboratory and continued to study the modulation of HCV entry. I identified and characterized EWI-2wint, a partner of CD81 able to negatively modulate HCV entry in some cells. This original observation suggested that HCV hepatotropism is not only linked to the presence of a specific receptor or co-receptor but also to the absence of a specific inhibitor in hepatocytes. I then continued with my research group to study the molecular and cellular aspects of HCV entry. During these years, national and international research on HCV has led to the development of many antiviral molecules that are particularly effective against hepatitis C. In 2015, I therefore decided to reorient the activity of my research group on the study of Hepatitis E Virus (HEV). This virus, which is now the leading cause of acute hepatitis in the world, is mainly present in developing countries but also represents an emerging problem in industrialized countries. This infection is particularly serious for pregnant women for whom mortality can reach 30%. There are no specific antiviral molecules to fight against this virus and the precise mechanisms of the HEV lifecycle remain to be elucidated.

In order to study all the steps of the HEV lifecycle, we developed a cell culture system allowing to efficiently amplify HEV. We discovered that different forms of the ORF2 capsid protein are produced during the HEV lifecycle. These isoforms have distinct functions, post-translational modifications and subcellular localizations. Of these isoforms, the ORF2i (infectious) form is the form that constitutes infectious virus particles while the glycosylated forms, named ORF2g (glycosylated) and ORF2c (cleaved), are massively produced proteins that are not associated with infectious material. These proteins do not form particulate material but are the major antigens present in the serum of HEV-infected patients and would serve as immunological decoys. Thus, we studied the post-translational modifications of ORF2 isoforms and the mechanisms regulating their expression. In particular, we identified and characterized a motif in the ORF2 sequence that controls the subcellular localization, fate and functions of ORF2 forms. It also promotes interactions between ORF2 and the host cell. Our observations highlighted that this motif is a unique central regulator of ORF2 addressing that finely controls the HEV lifecycle. Furthermore, using antibodies specific to the different forms of ORF2, produced and characterized in the laboratory, we identified the HEV viral factories and the cellular compartment with which they are associated.



As an extension of our work, we are now seeking to identify antiviral molecules that can effectively combat HEV. We also continue to study the post-translational modifications and mechanisms regulating the production of ORF2i/g/c forms but also of other ORF2 isoforms and viral factories. Based on our anti-ORF2 antibodies, we are also working on the development on a new diagnostic test for hepatitis E.

I joined the CNRS in 2003 as a research fellow and was appointed research director in 2016. I would like to point out that all this work would never have succeeded without the support, the involvement, the enthusiasm, the daily good mood of all my colleagues, students, and collaborators, as well as the financial support of our institutions, ANRS-MIE, the Pasteur Institute of Lille, Inserm-transfert and the region Hauts-de-France.

«What is best in the world, what is most beautiful in the world is invisible and cannot even be touched, it must be felt with the heart... « (Helen Keller)

The «Trypto'fan» Club

On October 7th, twenty five scientists of all backgrounds gathered to share new advances on the pathophysiological role of tryptophan metabolites. A special focus was made on kynurenines that are degradation products of tryptophan, an essential amino acid. These metabolites gained increasing interest lately in very diverse fields. They have been implicated in the regulation of neurological, physiological, toxicological or immunological mechanisms.

Therefore, the participants were scientists from various specialties, including Professor Gilles Guillemin (Macquarie University, Sydney, Australia) who demonstrated the interest of evaluating the concentration of these metabolites and their functions in different neurological pathologies. Professor Xavier Coumoul (Paris Cité University) described the importance of the AhR receptor in the response to kynurenines and its role in breast cancer during the CIIL seminar. Other presentations also underlined the importance of some of these metabolites especially in the control of respiratory infections. At the end of this day, we decided to set up a French tryptophan consortium through the establishment of working groups and exchange platforms that will allow interactions on these themes and perpetuate this type of event.

A big thank to the CIIL, the IPL, the Sf2i and the Dutscher company for contributing to the success of this day.

Odile POULAIN

Science Festival on 2022: "Climate Awakening"

On the weekend of October 8 and 9, 2022, the Lille Infection and Immunity Center (CIIL) met the public as part of the Science Festival which took place at the «Halle aux sucres», with the theme this year : "Climate Awakening".

The centre's scientists took great pleasure in exchanging views and were able to draw the public's attention to their work relating, among other things, to outdoor and indoor air pollution. Many questions punctuate their research, in particular the impact on respiratory health depending on the origin of the pollution (industrial, urban, agricultural, etc.).

Visitors were thus able to observe natural particles under the microscope (erosion, dust, etc.) but also observe the consequences on a lung exposed to fine particles over the long term. This pollution penetrates deep into the respiratory tract where it can cause inflammation and impair respiratory function as a whole. Effect that visitors were able to hear using recordings of people in respiratory distress.

To find out more, participants were invited to play to find the emblematic pollutants of different rooms in the house as well as their effects on health. Through small manipulations, the youngest could put themselves in the shoes of a researcher to identify the pollutant responsible for a patient's persistent cough.

Finally, visitors could take part in the quiz game and test their knowledge of air quality.

In summary, these two afternoons were an opportunity to have fun, and casually, to learn.

From the left to the right :
Layal MASSARA, Victor MARGELIDON, Muriel PICHAVANT, Celine WICHLACZ, Cécile LECŒUR

The news in brief ...

The sustainable development idea box at CIIL

CIIL's Sustainable Development Committee (SDC) invites you to gather feasible ideas for saving money (heating, electricity, water, plastics, etc.) and for changing our daily reflexes in the workplace towards more environmentally friendly behaviors (transportation, equipment sharing, etc.).

To do this, we have placed idea boxes in the halls of the IBL and Emile Roux buildings (see photo). These are completed by a virtual idea box in the form of document shared on Core for which you have received an access link by email.

All ideas, will be very welcomed before November 10, 2022 and we will do our best to implement these ideas

Thanks to all of you,

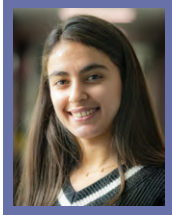
The members of the SDC: Frank Lafont, Céline Wichlacz, Cécile-Marie Aliouat-Denis, Mathieu Gissot and Alain Baulard

As you have seen, the Lévy building has now been demolished, which liberates the north face of the cedilla of the IBL (see picture). The demolition work will continue at the angle between the boulevard Louis XIV and the boulevard Maréchal Vaillant as well as the back slope of the IBL. The demolition of this latter will start on November 8 and the access of the back slope will be blocked by a wall. Furthermore, the waste water pipes from the cedilla will be modified in the coming weeks, which will lead to the closure of the clean water pipes of this part of the IBL building. Depending on the progress of the reconstruction works, the cedilla could be re-occupied at the beginning of December.

Welcome to our new students :

Lou Delval
Dir. : F. TROTTEIN
Team TROTTEIN

Amine Pochet
Dir. : A. MACHELART
Team BRODIN



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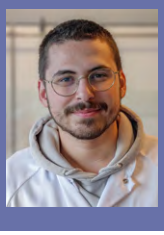
Eliott ROY
Dir. : O. MELNYK
& V. DIEMER
Team MELNYK



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- Laurence COCQUEREL
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