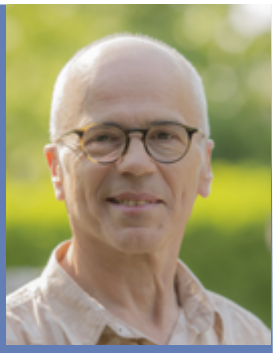
CIIL
Center for Infection & Immunity of Lille

NEWSLETTER

#10 | June 2023



Jean Dubuisson

We are proud to count among us Sébastien Janel who recently received the crystal medal of the CNRS for his work on atomic force microscopy. We are also glad to host, since April, the team of Damien Devos who has been recruited by IPL to develop a new research theme on bacterial evolution at the CIIL. After a difficult year linked to the departure of Jonathan Carlier, we feel relieved to host Alexis Denhez, the new head of the technical and logistical service of the IBL who joined us on May first. You can find the career pathways of these three colleagues in this Newsletter. In this issue, we also continue to present the researchers and engineers who actively participate at the CIIL project. This time we present Cécile Chenivesse, Professor at the University of Lille and medical practitioner at the CHU of Lille and Cécile Lecoeur, research engineer in biostatistics working in our unit. Finally, we take the opportunity of this Newsletter to pay tribute to Camille Locht, the first Director of the CIIL who officially ends is brilliant scientific career at the end of June. On behalf of all the CIIL members, I would like to thank him for his involvement in the creation and heading of our unit during the first 10 years of its existence.

CNRS Crystal Medal 2023

Sébastien Janel
CNRS engineer

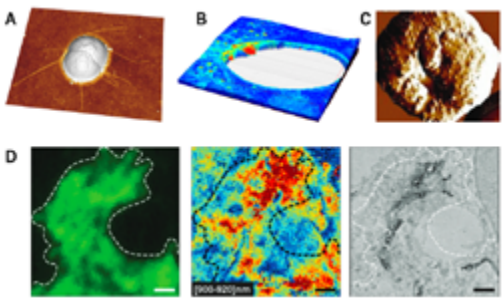
Graduated in applied physics from the universities of Limoges, Nottingham Trent and Toulouse, I had the opportunity in 2004 to join the institut de recherche interdisciplinaire (IRI @IEMN) then directed by B. Vandenbunder. There, I became familiar with various nanotechnologies, in particular scanning probe microscopy (AFM = atomic force microscopy, STM = scanning tunneling microscopy), in order to characterize biointerfaces (R. Boukherroub) and soft matter electrostatics (R. Blossey). This fascinating type of microscopy earned its inventors the Nobel Prize in only four years, thanks to its ability to image and even manipulate atoms.

In 2007, I joined F. Lafont's team, recently established on the Pasteur campus, in order to participate in the implementation of AFM in microbiology. Thanks to the vision of the interest of such a technique in the bio field, we were able to develop within the team unique expertise and tools, in particular for the mechanical characterization of samples, from biomolecules to cells and tissues. We have also invented CLAFEM correlative microscopy by coupling STED and PALM super-resolution photonic microscopy with AFM and electron microscopy. We are developing the automation of AFM, in order to increase the quantity and reproducibility of the data, and thus allow access to the technology to «non-experts».

These developments have allowed us to validate the stiffness tomography (initiated by our team and growing in the field) which allows the measurement of the stiffness of structures in living cells. They have also fueled numerous collaborations and discoveries beyond our team in multiple contexts: modification of topography at the nanoscale during infection/intoxication/gene expression, modulation of mechanical properties, quantification of adhesion at scales ranging from a biomolecule to a pathogen or a eukaryotic cell, etc.

I am very honored to receive this award from the CNRS, as it is a recognition of the quality and usefulness of the research conducted within the team and the CIIL.

I am involved in the community, notably via the French (MITI-RéMiSoL copil) and European (AFM BioMed) networks. Within the CIIL, I am involved as a prevention assistant, training correspondent, and member of the sustainable development group.



Some examples A. N. meningitidis pili, B. elasticity mapping of a trans-endothelial tunnel in a living cell, C. P. falciparum infected erythrocyte D. stiffening of a Golgi apparatus seen in CLAFEM: fluorescence (left), stiffness tomography (center) and transmission electron microscopy (right).

A new research team at the CIIL

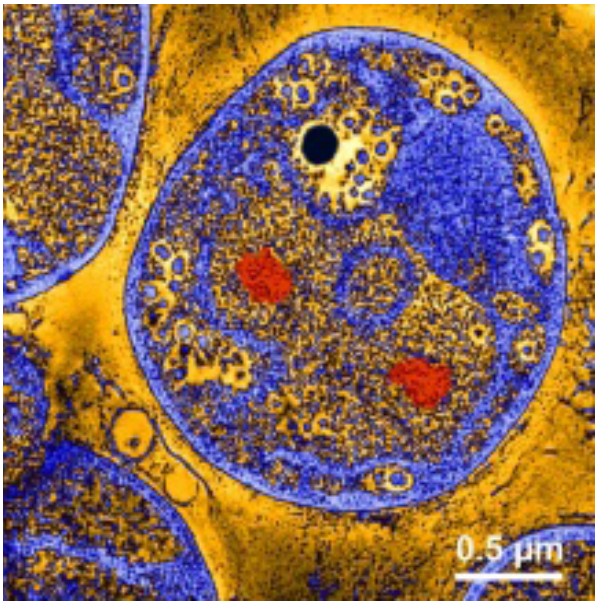
Damien DEVOS
IPL Research Director

My name is Damien DEVOS. One of the results of my post-doctoral stage was to determine that the multi-protein complexes that organize and maintain the membrane organization of eukaryotic cells have a common origin. Compartments that are not of endosymbiotic origin, such as mitochondria and chloroplasts, are derived from an ancestral complex from which they diverged to specialize in their current function. This is what we have called the proto-coatomer hypothesis. At some point during evolution, the hinge between prokaryotic and eukaryotic cells, the ancestor of the latter, who was still a prokaryote, developed this ancestral complex of membrane manipulation. This ability to manipulate its membranes provided this ancestral organism with an important competitive advantage, that of being able to begin to organize its cytoplasm, to specialize its intracellular space. In searching for the origin of this proto-coatomer, proteins structurally resembling the proto-coatomer have been detected in particular bacteria. It is important to emphasize that the resemblance between prokaryotic proteins and eukaryotic coatomers can only be detected at the structural level. It is by predicting the structure of prokaryotic proteins and comparing it to that of eukaryotic coatomers, whose structure had been determined by X-ray diffraction, that a similarity can be observed. This being one of the best examples of the fact that the structure is more conserved than the sequence. However, this is also a problem, because we cannot assess the relationship between these sequences.

These prokaryotic coatomers have been detected in bacteria of the superphylum PVC for Planctomycetes, Verrucomicrobia and Chlamydiae. After the Plancomycetes, the other bacteria of this group are little described. This group is interesting because they possess several characteristics rarely seen in bacteria. The main characteristic of Planctomycetes is that they have a developed intracellular membrane system. So, these bacteria with expanded membranes contain proteins that structurally resemble eukaryotic coatomers. All of this is unique in microbiology.

Are we in the presence of the ancestor of our cells? This is the question we have been interested in for more than ten years now. In addition to a developed endomembrane system, bacteria of the PVC group have developed a new mode of division. While Verrucomicrobia divide by binary fission using the protein FtsZ, which is amply conserved and essential in the vast majority of bacteria, all Planctomycetes and Chlamydia have lost this protein. How these bacteria divide without FtsZ is currently unknown. In addition, within the Planctomycetes, some members divide by binary fission, while others divide asymmetrically. Membranes and division are two main topics we study. We use a global approach, combining several species, experimental, informatics as well as theoretical analyses.

At the CIIL, in the context of my emerging team created with the support of the Institut Pasteur de Lille, we will continue to explore the divergent biology of these non-model bacteria representing the enormous biodiversity that exists outside our Petri dishes. Bacteria of the PVC group show a great diversity of lifestyles, from free-living (Planctomycetes) to obligate intracellular pathogen (Chlamydiae), including parasitism (Candidatus Omnitropha). The evolution of these ways of life from a common ancestor, assumed to live freely, is an aspect that we are studying. This could lead to understanding the evolution of pathogenicity of these bacteria. In addition, some PVC bacteria show characteristics that are usually more associated with eukaryotic cells or archaea. For this reason, they have been called 'the platypus of microbiology' and could lead to redefine the relationships between the three domains of life. We hope to establish Planctomycetes bacteria as models of PVCs to decipher their particular biology as well as their place in the tree of life.



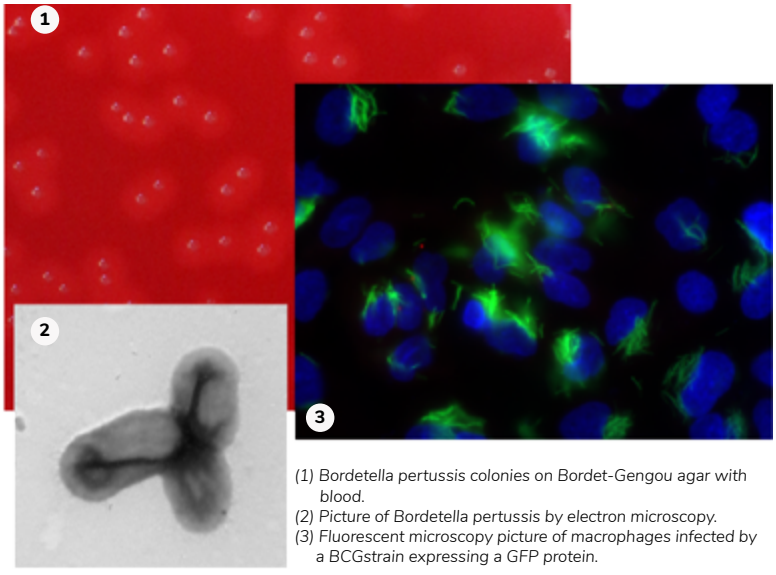
Thin section of Gemmata obscuriglobus with numerous membrane-limited areas. 'Cytoplasm' (yellow), 'Periplasm' (blue), DNA (red), polyphosphate inclusion (black), modified from Santarella-Mellwig R et al., PloS Biol (2013) 11: e1001565. Image credits: Rachel Santarella (EMBL, Heidelberg, electron microscopy) and Harald Engelhardt (MPI, Martinsried) for false coloring.

A new chapter begins for Camille LOCHT, CIIL's 1st Director

Camille LOCHT
INSERM Senior Research Director

«And now, the end is near, and so I face the final curtain ...» *(Paul Anka).*

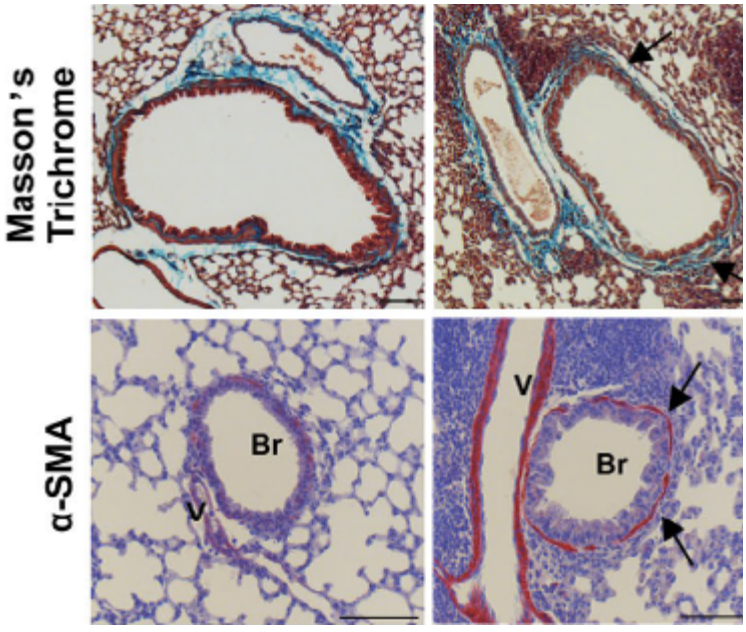
Looking back, over all those years, I can certainly say that I have been very fortunate to cross the paths of several wonderful and inspiring personalities. It started with one of my elementary school teachers in my fifth school year, then my German school teacher a few years later, my Microbiology professor at the University in Louvain-la-Neuve, Charles Colson, who ignited my passion for microbiology and my mentors during my post-doctoral years, including Bruce Chesebro, who taught me how to write scientific papers, to name just a few. Later, I had the chance to meet André Capron, who introduced me into the complex universe of immunology, and many PhD students and post-doctoral fellows, whom I had the privilege and pleasure to train, several of which are now well-established and -respected scientists. All have substantially contributed to shaping my personality and my scientific journey, and I will forever remember them in thankful respect. It was during my post-doctoral years in the mid 1980s, at the National Institutes of Health in Hamilton, Montana, that I became interested in the amazing world of bacterial pathogenesis and started to work on th whooping cough agent Bordetella pertussis. This was at the beginning of molecular biology on bacterial pathogens, and I was lucky to isolate and sequence the first B. pertussis gene, coding for pertussis toxin, the major virulence factor of this organism. This opened novel perspectives for the study of the structure-function relationship of this important toxin and protective antigen. Since that time my passion for this fascinating organism never faded. Through my time as a research scientist at SmithKline-Beecham (now GSK), and then at the Institut Pasteur de Lille first as a lab chief and Inserm Research Director, with the team I had the honor to lead for 30 years, I have been able to broaden my interest in the molecular pathogenesis of pertussis. In addition to pertussis toxin, we studied the major adhesin filamentous haemagglutinin and the master regulator two-component system BvgAS. Eventually, this led to the development of a novel, live attenuated nasal vaccine candidate against whooping cough, which is now in advanced-stage clinical development and will hopefully reach the market in 3 to 4 years. This development has also been possible thanks to the wonderful relationship I could build with ILiAD Biotechnologies, and in particular with its CEO Keith Rubin, who became a very good frienof mine. In parallel, my team has developed important research activities on m cobacteria, following an incentive of Jean Samaille, then Director General of the Institut Pasteur de Lille. Initially, we concentrated on the Bacille Camlette-Guérin (BCG), but soon we became interested Mycobacterium tuberculosis, the main causative agent of human tuberculosis, and discovered the heparin-binding haemagglutinin, an adhesin responsible for extrapulmonar dissemination and an attra tive vaccine and diagnostic antigen. We also discovered a novel genetic element we termed Mycobacterial Interspersed Repetitive Unit, which became a very powerful tool for molecular typing of mycobacteria and helped to discover the ancestor of the current M. tuberculosis clades. As drug-resistant tuberculosis is an important public health concern, we also became interested in the mechanisms of drug resistance and discovered the bioactivation pathway of the second-line drug ethionamide. This has led to the concept of drug boosting, by the addition of compounds able to increase the susceptibility of M. tuberculosis to ethionamide. A first such combination is now in clinical evaluation in South Africa. In addition to these scientific activities, I had the honor to lead the Center for Infection and Immunity of Lille for 10 years as the founding director, which provided me with additional opportunities to share scientific endeavors with other young and less-young team leaders and scientists. And now as "the end is near and so I face the final curtain" I can look back with thankful remembrance at all these wonderful years.



(1) Bordetella pertussis colonies on Bordet-Gengou agar with blood.
(2) Picture of Bordetella pertussis by electron microscopy.
(3) Fluorescent microscopy picture of macrophages infected by a BCGstrain expressing a GFP protein.

Cécile CHENIVESSE
Professor at University of Lille
and
Practitioner at the university hospital of Lille

I'm a Professor in Respiratory medicine at Lille University and head of the department of allergy and pulmonary medicine at Lille University Hospital. During my medical internship I had the chance to do a Master2 under the direction of Dr Anne Tsicopoulos in the laboratory headed by Pr André-Bernard Tonnel at Pasteur Institute. I continued with a PhD during which I studied the role of chemokines in the polarization of immune response acting via a differential recruitment of polarized T cells. In particular, I worked on the chemokine CCL18, which is highly expressed in the lung and in asthma and showed its role in the recruitment of regulatory T cells in ex-vivo and humanized mouse models. This was the first demonstration of the ability of a chemokine to attract regulatory T cells. I also participated to show that it could induce a regulatory phenotype in memory T cells by direct contact. Then, I moved to Pitié-Salpêtrière hospital in Paris for my medical career and turned there my fundamental research activity to respiratory neurophysiology. In 2013, I devoted one year to research in the Department of Physiolocal Sciences at Florida University headed by Pr emeritus Paul W Davenport. Globally, the studies I performed in this field showed that experimentally induced negative emotions reduced the gating of respiratory sensations leading to more severe breathless for a similar stimulus and that ventilation was maintained during hypocapnia by brain activity. In 2015, I came back to Lille to succeed Pr Benoît Wallaert as the head of the department of Allergy and Pulmonary Medicine at Lille University Hospital and naturally rejoined the team Pulmonry Immunity headed by Dr Anne Tsicopoulos. My research topic focuses on severe asthma, a rare and heterogeneous inflammatory disease of airways characterized by resistance to glucocorticosteroids. My clinical research is centered on severe asthma-related respiratory disability, which is mainly due to airway ob truction, itself secondary to airway remodeling. Although immunological bases of airway inflammation in severe asthma has been extensively studied, those involved in airway remodeling remain poorly known, preventing from targeted therapy. Thus, my fundamental and translational research aims to investigate the role of cytokines in airway remodeling of severe asthma and to evaluate the effect of targeting them. For this purpose, we firstly developed a mouse model of asthma with airway remodeling using an allergic model induced by dog allergen. This model has the advantage to reproduce all the features of airway remodeling including hyperplasia and hypertrophy of bronchial smooth muscle and of collagen as well as mucus hyperproduction. In this model we are studying the role of IL-22 and IL-20s cytokines, using knock-out and floxed mice as well as neutralizing antibodies. In parallel, we try to identify in human IL-22 and IL-20s signatures using induced sputum in order to identify biomarkers of good candidates for therapy blocking these cytokines. We aim to show that inhibiting IL-22 and/or IL-20s pathways reduces airway remodeling in preclinical models of severe asthma and then to reposition the anti-IL-22 biologic currently evaluated in severe atopic dermatitis (fezakinumab) into severe asthma with airway remodeling and to evaluate the safety and efficiency of anti-IL20 receptor in this setting. The use of anti-IL22 in severe asthma and the anti-IL20Rb antibody were patented by teams from the CIIL. In the future, I wish to combine my skills in immunology and respiratory neurophysiology to develop an original project on the impact of airway inflammation on neural remodeling and electrophysiological processing.



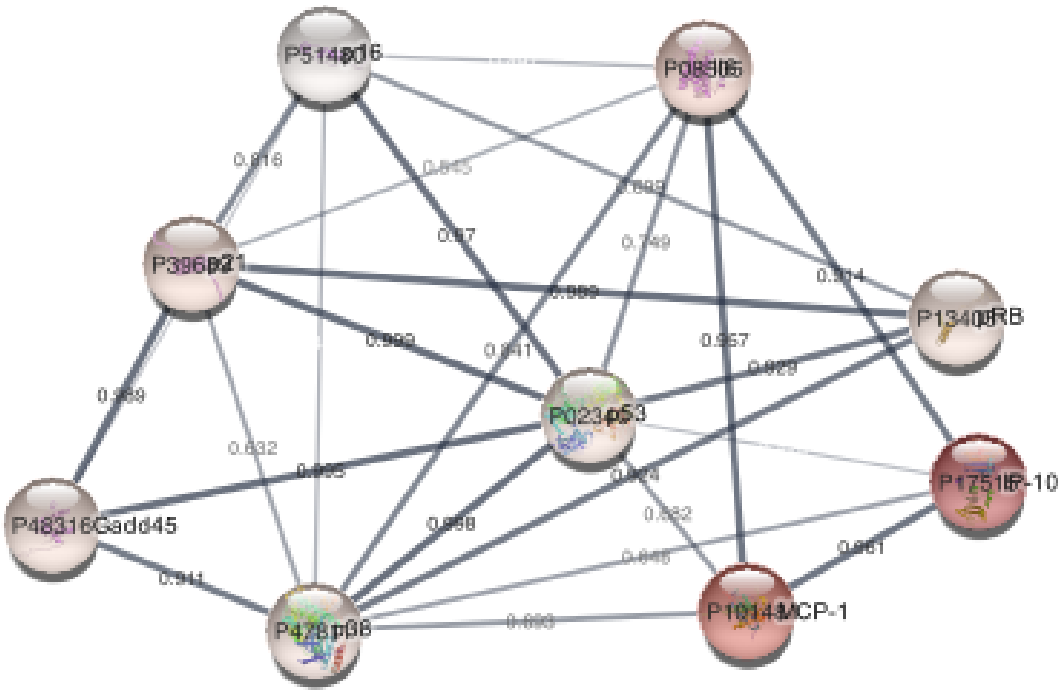
Airway remodeling in the mouse model of dog allergen-induced asthma Collagen is stained using Masson's trichrome (blue/green staining) and smooth muscle cells using α-SMA antibody (positive cells are stained in red). Black arrows show staining of interest. V: vessel, Br: bronchus

Cécile LECŒUR
Engineer at CNRS

My university training was oriented towards multidisciplinarity coupled with a crossing of France. Thus, I began my university course in biology in Lille which in 1997, in Tours, with a master's degree in Biology of Populations and Ecosystems. This is where I became aware of the usefulness of computer and statistical tools in biology. I therefore opted for a fifth year University degree (DESS) in Complementary Computer Skills (Tours). And I chose to do an end-of-study internship applied to statistics in the pharmaceutical company Syntem (Nîmes). My diploma in hand, I went back to the North. Anyway, the summers are too hot in Nîmes. And in 2000, I completed my training in statistics with the University Degree (DU) "Biostatistics Applied to Clinical Research and Epidemiology".

In 1999, I had the opportunity as an engineer in bio-statistics in the laboratory directed by Pr. Philippe Froguel. I then discovered genetic studies applied to obesity, diabetes and cardiovascular disorders. I worked on this theme for 18 years, including 3 years spent in London. In nearly 20 years, I have witnessed the technological revolution in the characterization of the genome. Thus, I started by carrying out genome-wide linkage studies with around 400 microsatellites to end up with association studies including several tens of millions of nucleotide variants (GWAS) through association tests on candidate genes. Linkage studies at most made it possible to highlight genomic regions likely to contain candidate genes when GWAS offer the possibility of directly identifying candidate genes. This experience allowed me to participate in many international consortia and to contribute to the discovery of susceptibility genes such as KCNJ11, NAMPT/PBEF1, CNR1, FTO, MCHR1, ENPP1.

In 2017, I joined the CIIL. By discovering the projects carried out there, I encounter a wide variety of themes (respiratory disease, parasitism, virology, etc.), data to be analyzed (expression, histology, immunology, fluorescence, viability, synergy, etc.), and new problems (small samples, etc.). This is how I came to use other tools (mixOmics, Cytoscape, etc.) and other methods (non-parametric tests for small samples, multivariate methods to explore the richness of the data, enrichment study and of pathways, etc.). By working alongside you, I have developed a consulting activity, and I have participated in various studies which have made it possible, among other things, to better understand how the hepatitis E virus functions in the infected cell, or to confirm an association between schizophrenia and the Toxoplasma parasite.



Genes network - Cytoscape

Life at the CIIL

Portrait of Alexis DENHEZ

The new head of the Technical and Logistics service of the IBL

After obtaining in 1998 a bachelor's degree and a master's degree in Production Management at the University of Hainaut in Valenciennes, I joined the company ELIS (Europe Linge service) Industrial Laundry where I cut my teeth through several positions on different sites.

First of all as Head of flat linen line specialized in linen rental from restaurants and hotels on the Calais site (50 agents and 25 tons of laundry washed every day),

In 2001 I joined the Wattrelos site to hold the position of Assistant Production Manager and Quality Delegate, a factory specializing in linen rental for clinics and hospitals (80 agents and 35 tons of linen every day). I also became a project manager for the implementation of the RABC standard.

In 2007, I was asked to take on the role of Production and Maintenance Manager at the Calais site (100 agents and 35 tons of laundry washed every day). I am also in charge of the expansion and modification project of part of the factory.

In 2011 I joined the University Hospital of Lille as a Sterilization Manager for the implementation of the STERINORD project which saw the light of day in 2013 and which is today one of the largest sterilization units in France with its 80 agents spread over 2500m2, its 1200 operating trays treated every day for an annual equivalent of 4.6 million instruments.

In 2012 I obtained a Professional Master's degree in Industrial Engineering and Global Logistics at the University of Artois in Bethune.

In 2019 I joined the Central Pharmacy of the CHU as Operations Manager (40 agents) where I work on several projects including the new pharmacy, the installation of single box robots or the automation of the delivery of health products.

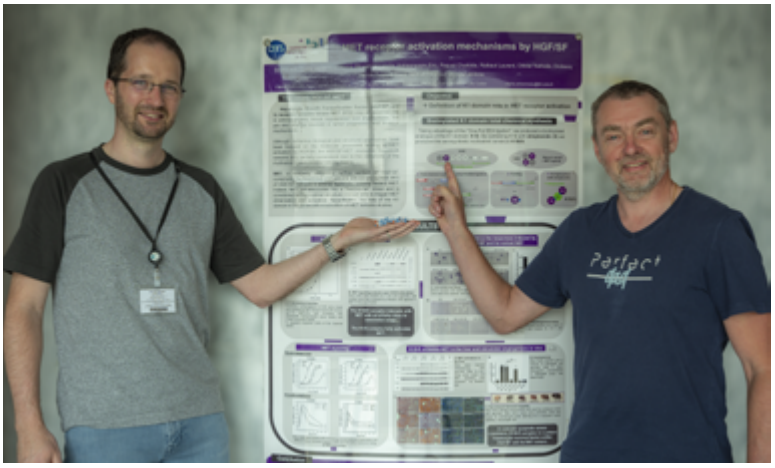
Since May 2, 2023 I hold the position of Head of Technical and Logistics Service with at my side 2 Technicians who are Marc Messemanne and Nicolas Ampen.

A major industrial collaboration with the CBF team

Jérôme VICOGNE et Oleg MELNYK

In partnership with French and Italian collaborators, Oleg Melnyk's team has recently entered into a collaboration and licensing agreement with Boehringer Ingelheim.

Idiopathic pulmonary fibrosis is characterized by rapid progression and an average survival time of just 3 years. Idiopathic pulmonary fibrosis affects around



3 million people worldwide, mainly patients over the age of 50, and affects men more than women. While current treatments are succeeding in slowing down the decline in lung function, there are still many therapeutic developments to be carried out to ensure a better quality of life for patients. The K1K1 protein induces anti-fibrotic, regenerative and anti-inflammatory responses by activating hepatocyte growth factor receptor-dependent signaling (c-MET or HGFR). Genetically engineered, the K1K1 protein consists of two copies of the kringle 1 (K1) domain of hepatocyte growth factor/scatter factor (HGF/SF), the natural agonist of c-MET. Together with their collaborators, Oleg Melnyk and Jérôme Vicogne have generated initial data demonstrating the therapeutic potential of K1 domain multimerization, and characterized K1K1 activity in vitro and in vivo. This is an excellent achievement in the fundamental collaborative research that began many years ago.

Sylviane PIED & Lennart MARS

Organizers

On the 11th and 12th of May 2023, the French Neuroimmunology Club (CFNI) held a successful symposium in the IBL amphitheater. The CFNI is affiliated to the Société Française d'Immunologie (SFI) and the Société Française des Neurosciences (SFN). The club was set up in 2010 and has since been active in organizing scientific events and promoting neuroimmunology in France. Neuroimmunology is a discipline that integrates the activities of the immune, nervous and endocrine systems. These systems interact strongly with each other. Neurotransmitters, neuroendocrine hormones and nociception regulate immune activity, while body temperature, sleep, eating behavior and cognition are influenced by the immune system.

The neuroimmunology symposium aims to promote national and regional excellence within the field. It brought together around sixty participants from France and abroad, with a significant representation of young researchers.

The symposium was organized by Dr Mars, Dr Pied and Prof Vermersch. It was sponsored by the CIIL, LICEND, the University of Lille, ARSEP, LESAFFRE, MERCK, NOVARTIS and the Hauts de France region.

The symposium comprised eight sessions covering the latest findings on immune surveillance of the central nervous system, physiological and pathological interactions between the immune and nervous system, the neuroimmunology of host-microbe interactions, and neuroendocrinology. A session dedicated to young neuroimmunologists gave 5 doctoral or post-doctoral students the opportunity to present their research in 10 minutes in order to encourage young talent. Karen MATTA, Madeleine PURCAREA and Benoit MANFROI were awarded travel grants to the annual SFI and ISNI (Quebec) congresses.

This inaugural neuroimmunology symposium in Lille will kick off rotating symposia organized within a different city each year. The next symposium will be held at the Brain Institut in Paris on 23-24 May 2024. See you there!

A new European project at the CIIL

Nathalie MIELCAREK

Jean-Claude SIRARD

Launch of the European NOSEVAC project

Two teams of the CIIL are involved in NOSEVAC, a HORIZON EUROPE project, whose ambition is to develop new nasally administered vaccines to prevent infection, transmission and disease caused by respiratory pathogens.

The objective of the NOSEVAC consortium, which brings together 12 partners from 8 countries, is to develop bivalent vaccines protecting on the one hand against the bacteria Bordetella pertussis and Streptococcus pneumoniae responsible respectively for whooping cough and pneumococcal pneumonia, and on the other hand against the viruses responsible for seasonal influenza and Covid-19. These bacterial and viral respiratory infections are major causes of morbidity and mortality worldwide. The available vaccines against these pathogens are administered by intramuscular injection but do little or nothing to prevent colonization or infection of the nasal mucosa. Therefore, these vaccines are less effective in preventing colonization/infection and transmission of pathogens. The consortium proposes to develop vaccines formulated with lipid microcapsules optimized for administration to the nasal mucosa. The NOSEVAC consortium therefore aims to evaluate these innovative nasal vaccine platforms as a novel concept to block the earliest stage of nasal mucosal infection, thereby inhibiting colonization and transmission.

The specific objectives of NOSEVAC are to ::

- Discover bacterial antigens that contribute to the colonization of the nasopharynx
- Develop vaccine formulations for nasal administration of RNA and protein-based antigens
- Use a combination of in vitro and in vivo models to assess the efficacy of these vaccines
- Identify the immune factors of the nasal mucosa necessary for vaccine protection
- Produce two candidate bivalent vaccines to fight, on the one hand, against B. pertussis and S. pneumoniae infections and, on the other hand, against influenza and COVID-19.
- Question the acceptability of nasal vaccination

The NOSEVAC project will (1) strengthen European innovation potential in the field of mucosal vaccines against respiratory infections, (2) develop knowledge on the molecular determinants of colonization and infection and nasal immunity, and (3) define the acceptability of nasally delivered vaccines.

The teams of Nathalie Mielcarek and Jean-Claude Sirard were at the origin of this project coordinated by the European Vaccine Initiative consortium (EVI - www.euvaccine.eu). The kick-off meeting was organized at the Institut Pasteur de Lille on May 16 and 17, 2023 and brought together all the partners.

Quick facts about NOSEVAC:

Full name of the project: Innovative nasal vaccines to prevent pathogen infection and colonization of the upper respiratory tract

Duration: 5 years (01 May 2023-30 April 2028)

Funding agency: European Commission

Budget: €11.1 million (including €6.8 million from the EU)

Coordinator: European Vaccine Initiative (EVI)

Consortium: 12 partners (including 6 EU countries + UK + Switzerland)

CIIL off-site day

CIIL animation team

From left to right
Patricia DE NADAI, Christine PIERROT, Muriel PICHAVANT

The team in charge of the scientific animation of the CIIL had the pleasure of bringing together all the members of the CIIL during the Off-site Day at the Cité des Echanges de Marcq-en-Baroeul on Thursday, June 8th.

This day, placed under the sign of conviviality and sharing, was an opportunity for the laureates of the intraCIIL and Bonus H fundings (2021-2022 and 2022-2023) to present theirscientific work (Pr Cécile Chenivesse, Dr Carine Rouanet,

Dr Arnaud Machelart and Dr Philippe Gosset). This year, the themes concerning parasitology (Dr Sabrina Marion), bacteria (Dr Damien Devos) and antibiotic resistance (Charlotte Costa, Dr Cyril gaudin and Dr Ruben Hartkoorn) were highlighted, with several communications.

We also had the pleasure of listening to Dr Audrey Dussutour who gave us a memorable and incredible lecture on the blob. Her speech generated a lot of interest. Do not hesitate to contact her by email if you want her to send you a small piece of blob by mail!

Dr. A Dussutour

The members of the Association of Young Researchers of the CIIL were able to take stock of all the activities that have been put in place to energize the center. This was also the opportunity for them to announce that the association is changing its scope, by opening up to the entire Campus of the Institut Pasteur de Lille.

Two CNRS speakers, correspondents for the COREGAL system, Stéphanie Barbez and Maxime Flament, gave us a presentation on "Equality between women and men: a subject at the heart of the CNRS Haut-de-France strategy".

For the first time, the Posters session was organized prior to the Off-Site Day so that the work of our thesis students and our post-doctoral fellows is better highlighted. The posters were displayed in the IBL lobby for a week, allowing everyone to view them. At the end of the day, prizes were awarded to the winners : Jérémy Alloo for the Jury Prize and Elise Delannoy for the Public Prize.

Finally, thank you to everyone who helped us prepare for this day, thank you to all the speakers, thank you to the members of the jury for the posters, and thank you all for your participation!

Have a nice summer everyone and see you soon for other scientific and friendly events!

The scientific animation team

General Assembly Meeting of the CIIL

Preparatory meeting for the next CIIL-2026 five-year program

Frank Lafont, candidate Director-elect, presented the state of play 6 months after his election for the next five-year term. Operations will be based on :

-a steering committee made up of team and IPL group leaders, a representative of the laboratory council and the gender and sustainable development committees

-an external Scientific Advisory Board to advise on issues referred to it. Its current members are Ali Amara, Christope Combadière, Freddy Frischknecht and Florence Niedergang.

-temporary working and discussion groups, which report to the Laboratory Council and the Steering Committee. These groups are open to all staff.

-a steering committee which will lead, guide and plan the activities of the committees and councils and the working groups The steering committee's main areas of activity are leadership and communication, external liaison, scientific orientation and the internal life of the CIIL. This committee is still open for additional merbers if interested.

With regard to IPL accreditation, the following teams and groups have submitted an application signed by the future CIIL direction :

- Cellular and Molecular Virology - Sandrine Belouzard
- Evolutionary and Environmental Microbiology - Damien Devos
- Biology of Apicomplexa Parasites - Mathieu Gissot
- Mechanobiology of Host-Microbe interactions - Alexandre Grassart
- Antibacterial Drug Discovery and Development - Ruben Hartkoorn
- Miniproteins and Therapeutics - Oleg Melnyk
- Research on Mycobacteria and Bordetella - Nathalie Mielcarek
- Targeted Immunomodulation for Infection and Lung diseases - Muriel Pichavant
- Bacteria, Antibiotics and Immunity - Jean-Claude Sirard
- Viral Infection and Chronicity - François Trottein

And the groups :

- Mycobacteria, co-infection and local drug delivery - Arnaud Machelart (Team Mielcarek)
- Viral reservoirs in myeloid cells - Fernando Real (Team Trottein)

Florent Sebbane has also expressed an interest in the team he leads joining the CIIL in 2026, and is taking part in the discussions being held in this context.

At this stage of the discussions, the single shared vision proposed is «an integrated global health approach to infection control, with a continuum from basic research to clinical and translational research». Teams can identify with one or more of the proposed objectives: basic research, new models and bioengineering, context, anti-infectious approaches, clinical and translational research. This is still under discussion and may evolve as the application is put together for the summer of 2024.

We took the oportunity of the meeting of the general assembly of the CIIL to present the Greenhouse Gas Emissions Balance was presented for the year 2021 using the GDR Labo1point5 tools. For this first BEGES, the overall footprint was estimated at 4.9t eCO2 per person or 17.8 eCO2 per FTE. Many thanks to Sébastien Janel for coordinating this assessment and to all the parties involved for sharing the information when available. The CIIL's BEGES should be compared with the CNRS's initial estimates for the entire organisation, with 14t eCO2/agent in 2019, or with the average obtained by Labo1Point5, taking into account different structures within the organisation and different disciplinary fields: 6.7t eCO2/agent. Reduction options will be proposed on the basis of different scenarios established by Labo1point5.

A new start for Corinne

Corinne Grangette recently retired after more than 35 years working at Lille's Pasteur Institute. Recruited in 987, Corinne began her career in Professor André Capron's laboratory, working with Prof. Monique Capron and then with Prof. Jean-Claude Ameisen. At that time, HIV/AIDS was a major public health issue. The team's work pioneered the discovery of the mechanisms of programmed cell death (apoptosis). From 1997 to 2015, Corinne worked in the «Lactic Bacteria and Mucosal Immunity» (BLIM) team, first headed by Dr. Annick Mercenier and then by Prof. Bruno Pot. On Bruno Pot's departure (2015), Corinne took over as team leader until 2019. The team's main theme was the use of lactic acid bacteria as delivery vehicles for vaccine antigens or as anti-inflammatory agents, and to study the intrinsic (probiotic) properties of these bacteria. WHO defines probiotics as «*live micro-organisms which, when ingested in sufficient quantities, exert positive effects on health, beyond the traditional nutritional effects*». Corinne's work, published in excellent journals (Gut, PNAS, JACI, Vaccine...), has enabled us to better understand the mechanisms underlying probiotics beneficial effects. Corinne has also assessed the therapeutic potential of commensal bacteria isolated from the human microbiota for the development of next-generation probiotics or «LiveBiotherapeutics», mainly in the context of IBD and metabolic pathologies. In 2020, Corinne has decided to end her career within our team, to which she has contributed, with great motivation and enthusiasm, brought her knowledge of probiotics in the field of viral respiratory infections. All Corinne's colleagues have come to appreciate her professionalism and kindness. At the end of a rich and fruitful career, all CIIL members wish Corinne Grangette a very happy retirement.

Isabelle Wolowczuk & François Trottein

The news in brief ...

Thesis prize

Cyrine BENTALEB is one of the 2 winners of the «ANRS-MIE / Société française de virologie» thesis awards for basic research in viral hepatitis, which were presented at the 23rd AC42 - ANRS-MIE National Viral Hepatitis Network meeting on May 23 and 24, 2023 in Paris. This year's awards recognize 2 young scientists whose research in the basic sciences of viral hepatitis has left its mark on the field through its innovation, originality and high quality. Cyrine completed her doctoral thesis entitled «Le virus de l'hépatite E : caractérisation de ses usines virales et de sa réplicase», under the supervision of Laurence Cocquerel.

New arrival

Anne Decristoforo, currently training assistant and assistant to the head of the training department of the CNRS Ile-de-France (IFSeM), will join the team of account managers on July 1 this year.

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