Students'Mobility

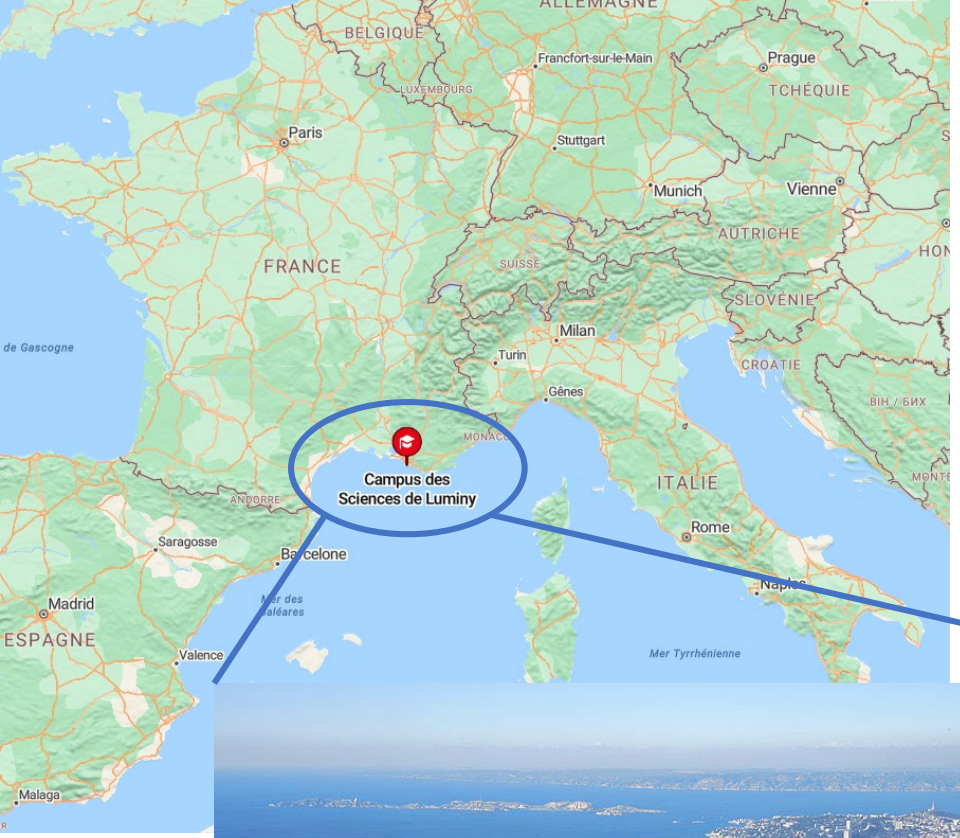
La Sapienza – Aix-Marseille Universities

2025

International Immunology at Amu (IntIM-Amu) Program, funded by Amidex

Béatrice Nal – Rogier (teacher – researcher / Amu & CIML)

The Luminy Campus in Marseille



Within the national park of the Calanques !

[Presentation of the university | Aix Marseille Université]

Key figures

- More than 80,000 students
- 8,200 staff including 2,500 teacher-researchers
- 17 faculties, schools or institutes
- 20 research and education institutes and 2 graduate schools (EUR)
- 5 major campuses

- 12,000 international students
- More than 1,750 students on outgoing mobility schemes at over 600 partner institutions in more than 60 countries, including 294 Erasmus+ partners
- 70 diplomas with international partnership
- 22 international laboratories
- Obtaining the 3-star *Bienvenue en France* label in 2023

Promoting research

- 89 France 2030 awardee projects in progress, €875 million obtained from France 2030

- "University Innovation Hub" label awarded in 2023

- Leader of the Marseille Immunology Biocluster, aimed at revolutionising immunology therapies - €95.6 million investment over 10 years

5 interdisciplinary and cross-sectoral research hubs (PR2I)

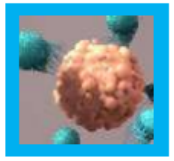
Cross-cutting themes:

Imaging Nanosciences Sports & well-being Big Data Mediterranean

ENERGY

- NUCLEAR FUSION AND FISSION
- BIOENERGY
- ENERGY STORAGE
- ENERGY EFFICIENCY
- ENERGY TRANSITION

HEALTH AND LIFE SCIENCES



- ONCOLOGY
- IMMUNOLOGY
- NEUROSCIENCES
- MICROBIOLOGY/INFECTIOUS DISEASES
- IMAGING
- GENETICS/DEVELOPMENT
- NUTRITION/CARDIOVASCULAR

HUMANITIES

- MEDITERRANEAN STUDIES
- DIGITAL HUMANITIES
- MIGRATIONS
- ARCHAEOLOGY
- BRAIN/LANGUAGE
- GLOBALISATION
- ECONOMICS/POLICY PUBLIC
- LAW

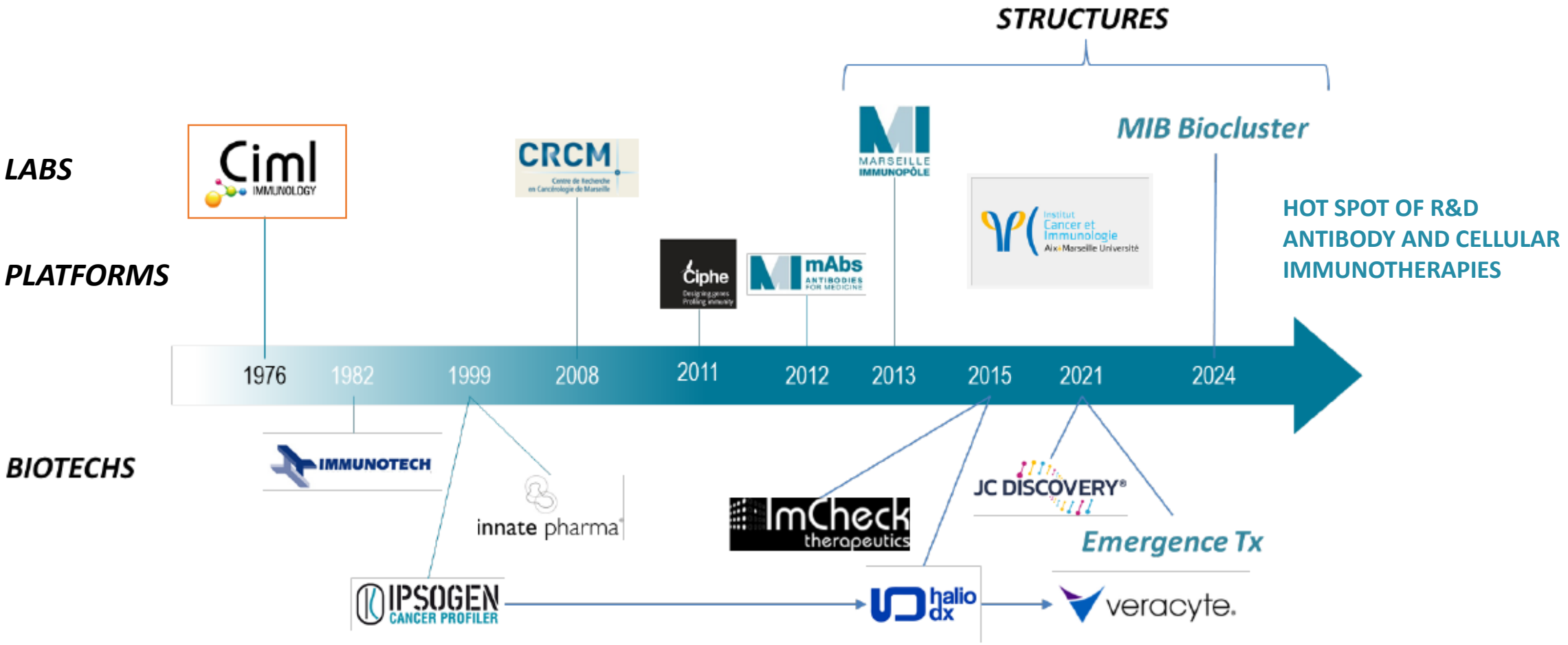
ENVIRONMENT

- CLIMATOLOGY
- HUMAN/ENVIRONMENT RELATIONS
- RESOURCES
- OCEANOLOGY

ADVANCED SCIENCE AND TECHNOLOGY

- OPTICS/PHOTONICS
- MICROELECTRONICS
- AEROSPACE
- MATHEMATICS
- PARTICLE PHYSICS
- ASTRONOMY/COSMOLOGY

Immunology in Marseille



TEACHING AND TRAINING in Immunology at Aix-Marseille University (Amu)

Exploring all facets of immunity, at all scales

Membrane dynamics & T cell signaling
Hai-Tao HE & Didier MARGUET

Integrative biology of T cells
Romain RONCAGALLI

Affinities in the adaptive repertoire Thomas DUPIC

Immune tolerance & T cell differentiation
Magali IRLA

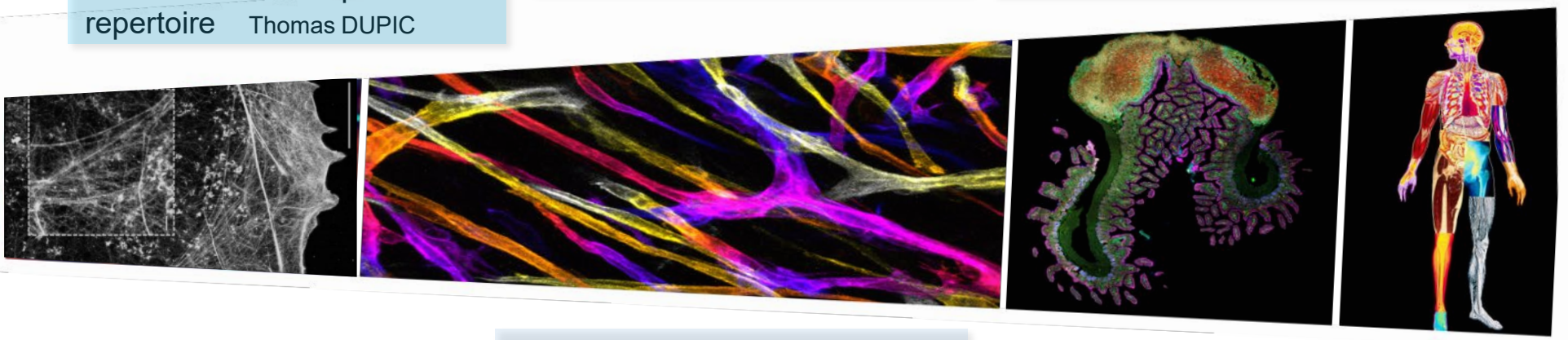
B cell immunity to infection
Mauro GAYA

Pathogenesis and therapeutic targeting of lymphoid neoplasms
Sandrine ROULLAND & Bertrand NADEL

Integrative B cell immunology
Pierre MILPIED

16 Research Teams
6 Core Facilities
230 People
24 Nationalities

<u>2016-2024</u>
10 ERC grants
40 Patents
523 Articles



Dendritic cells & antiviral defense
Marc DALOD

Dendritic cell biology
Philippe PIERRE

Inflammation biology
Toby LAWRENCE

Immunology of stromal cells
Marc BAJENOFF

Innate lymphoid cells
Eric VIVIER

Immunosurveillance of CNS
Réjane RUA

Neural regulation of Immunity
Sophie UGOLINI

Innate immunity at mucosal sites
Achille BROGGI

Development of the immune system
Serge Van de PAVERT

"Exploring all facets of immunity, at all scales"

The immunology teaching team
Faculty of Sciences
Department of Biology

Today's presentations :

- The Master in Immunology
  - Franck GALLAND
- Mobility opportunities
  - Béatrice NAL-ROGIER
- CIML : the host Lab
  - Serge Van de PAVERT
  - Julie TOMAS

amU Faculté des sciences Aix Marseille Université

MASTER IN IMMUNOLOGY

● Head of the Master program and M2 course :
Pr. Franck GALLAND
● M1 courses manager :
MCU. Carole BERRUYER
e-mail: sciences-master-immunologie@univ-amu.fr
web site : https://formations.univ-amu.fr/fr/master/5SMG

IMMUNOLOGY IN ALL ITS STATES

FUNDAMENTAL IMMUNOLOGY
IMMUNODIAGNOSTIC
IMMUNOTECHNOLOGY
IMMUNOENGINEERING
IMMUNOTHERAPIES

THE OBJECTIVES

- Expertise in research-level immunology
- Strong practical learning in laboratories and companies

THE GOAL : PROFESSIONAL INTEGRATION

To prepare the immunology professionals of tomorrow

- Doctors in immunology
- Engineers specializing in immunotechnology

HIGHLIGHTS

- Training for and by research
- Strong link to industry
- Internationalization

amidex Aix Marseille Université

AMiDEX label of excellence for research 2024

PARTNERSHIPS

- Research institutes
- Hospitals
- Technology platforms
- Engineer school
- Biotechs
- Internationalization

Ciml IMMUNOLOGY · CRCM Centre de Recherche en Cancérologie de Marseille · IBDM INSTITUT DE BIOLOGIE DU DÉVELOPPEMENT DE MARSEILLE · AP-HM Assistance Publique Hôpitaux de Marseille La Timone · INSTITUT PAOLI-CALMETTES · mAbs ANTIBODIES FOR MEDICINE · Ciphe Designing genes Profiling immunity · POLYTECH MARSEILLE · veracyte · IMMUNOTECH · BECKMAN COULTER · ImCheck therapeutics · innate pharma · HARVARD MEDICAL SCHOOL · Karolinska Institutet · SAPIENZA UNIVERSITÀ DI ROMA · KING'S College LONDON · CIVIS A European Civic University

M1: 8-week internship
M2: 5 months internship in laboratory or industry, in France or abroad

amU Faculté des sciences Aix Marseille Université

Master 2 Immunology

Knowledge of immunology is becoming essential to understand the physiopathology of inflammatory, metabolic, degenerative, infectious diseases and cancers. The aim of the Master's program is to provide training through and for research in immunology. It enables the acquisition of knowledge and skills to train experts who will contribute to future scientific advances in the field of immunology at national and international levels. Student mobility is strongly encouraged and international students are welcome on the program.

Presentation

● Description

The aim of the Master course is to provide an understanding of immunology at all levels of analysis and in a variety of situations. Most of the theoretical teaching takes place in M1. M1 is taught in French, although some lectures are given in English, scientific articles are analyzed in English and some of the laboratories hosting work placements are English-speaking. M2 focuses more on real-life situations and is entirely taught in English.
The training is delivered through lectures, practical exercises and tutorials in which students play a proactive role. Students are exposed to professional situations in the form of supervised projects in the academic and private sectors. Internships are part of the training (M1: 7 weeks in the public sector; M2: 5 months either in the public or private sector, in France or abroad)

● Objectives

-To be able to diagnose an immune system by developing a broad understanding of fundamental immunology, mechanisms of regulation in physiological and pathological situations and principles of manipulation of the immune system for research and therapy.

-To participate in setting up research in immunology through identifying original and pertinent biological questions, reasoning, implementing experimental approaches and analyzing, exploiting and putting into shape and perspective scientific data.
-To develop professional skills, including communication, practice of English, leadership, team work, critical analysis, compliance with good practice in a laboratory.

● Admission requirements

The Master's program is aimed at students who have obtained a Bachelor's degree in France (BAC+3) or an equivalent degree abroad, have a solid foundation in cell and molecular biology and biochemistry and have passed a module on the basics of immunology.
It is open to doctors/pharmacists who wish to specialize in immune intervention.
The Master's program recruits candidates following examination of their application. An interview may be required.

Direct entry in the second year (M2) is possible for national and international candidates at BAC+4 who can demonstrate solid knowledge in fundamental immunology.
Enrolment in the Master 2 course requires a hepatitis B vaccination.

● For which professions?

The Master's programme offers students the opportunity to continue their studies at doctoral level or to enter the job market at BAC+5 to work for public laboratories or diagnostic and pharmaceutical companies as engineer and research assistant.

● Why choose this course?

The Master's degree provides expertise in immunology through a unique pathway that breaks down the barriers between academia and industry, allowing students to pursue a PhD in immunology or an engineering position in biotechnology or the public sector. Teaching includes the participation of researchers from Marseille's leading laboratories and international visiting researchers, a focus on clinical practice and the health sector, a partnership with the Polytech engineering school and the contribution of numerous local companies. The Marseille Immunology Biocluster (MIB) is a recognition of the excellence of research in immunology and the dynamism of biotech companies in Marseille.communication and digital technology, teach on the Master's programme, complementing the theoretical training with practical applications and skills development.

→ Our web page

→ To register in M1:

Candidater en Master 1 | sciences.univ-amu.fr

For French students or students who have studied in France: Immunologie - Mon Master

For foreign students: Études en France (diplomatie.gouv.fr)

→ To register in M2:

Candidater en Licence 2 - Licence 3 - LP - Master 2 | sciences.univ-amu.fr

For French students or students who have studied in France: eCandidat (univ-amu.fr)

For foreign students: Études en France (diplomatie.gouv.fr)

Contact: Franck GALLAND
Mail: sciences-master-immunologie@univ-amu.fr
For all questions relating to the schooling of students enrolled in the Masters course:
Contact: Tamara ORIOL
Tel: 04.13.94.61.18

Postal address:
Schooling Department:
163 avenue de Luminy, case 901,
13288 Marseille Cedex 9 - Bât TPR1 - Ground floor

www.sciences.univ-amu.fr/en

Études en France

Enter « master immunologie marseille »

INTernational Immunology Master - Aix-Marseille University (IntIM-AMU)

A*Midex Academy of Excellence programme 2021-2024

OBJECTIVES:

Develop the internationalization of the Master in Immunology by working on two major axes:

1- A program taught in English

A transition of the M2 to English from 2024 thanks to the intervention of local and international experts promoting the attraction of English-speaking international students.

2- Privileged partnerships with European universities

Collaborations with CIVIS Alliance universities to facilitate inbound and outbound mobility.

Internship in the field of Immunology in Marseille

How to apply?

- Send a CV + letter of motivation to **Dr Béatrice Nal-Rogier** (nalrogier@ciml.univ-mrs.fr)

- Indicate the lab(s) and project(s) you like to join and the dates/duration

*Applications are open until **March 31st 2025***.

Funding : up to 3 *« International Immunology at Amu » A*Midex fellowships* will be available for successful international candidates for short (1 to 2 months) and longer stays (up to 6 months). Candidates are encouraged to also apply to local funding in their home university and to ERASMUS fellowships, when possible.

Gratuities: ~ 600 euros / month
On campus accommodations: ~ 260 euros / month

Accommodations for international students in Marseille

- University accommodations for foreign students (CROUS Amu)
  - Minimal duration of stay: 2 months
  - Rooms available from 10th January 2025 to 31st August 2025
  - Renting fees: 248 – 269 euros / month

Hosting Labs (2025)

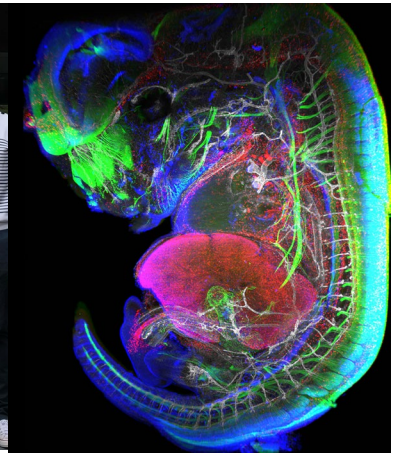
Ciml IMMUNOLOGY

Serge van de PAVERT

Yann KERDILES

Carole SIRET

Innate lymphoid cells in fetal and neonate immunity



Julie TOMAS

Innate immunity at mucosal sites

Nathalie PUJOL

Innate immunity in *C. elegans*

Guillaume HOEFFEL

Neuroimmune regulations of tissue regeneration

INNATE IMMUNITY AT MUCOSAL SITES

Julie TOMAS

CRCN CNRS

tomas@ciml.univ-mrs.fr

Team Achille Broggi

Achille Broggi and his team study the interplay between the immune system, commensal microbes, and the mucosal layer: http://www.ciml.univ-mrs.fr/publications/by-team/33837.

Evolving in AB's team, I am particularly exploring **how malnutrition affects mucosal homeostasis, microbiota and immune response.**

Early emergence of malnutrition has disastrous consequences later in life and must be assessed at very early stages to fully understand the pathogenesis and associated side effects such as recurrent infections and noncommunicable diseases. We developed a Severe Acute Malnutrition (SAM) mouse model in males starting at weaning that reproduces the main physiological, immunological, microbial and metabolic features of SAM in children. In addition, we have identified key markers to monitor under nutritional intervention: the mucosal immune system and the intestinal microbiota, which remain dysbiotic unlike physiological parameters.

Today, using this system, we are studying how to compensate for the side effects of SAM with probiotics, bacterial metabolites, combined or not with nutritional intervention, and how malnutrition favors infections and impairs vaccine efficacy.

Fanny Hidalgo-Villeda, Matthieu Million, Catherine Defoort, Thomas Vannier, Flavie Sicard, Margaux Lagier, Camille Wagner, Cynthia Arroyo-Portilla, Lionel Chasson Jean-Pierre Gorvel, Hugues Lelouard*, **Julie Tomas*** (2023). *Prolonged dysbiosis and altered immunity under nutritional intervention in a physiological mouse model of severe acute malnutrition*, iScience. DOI : 10.1016/j.isci.2023.106910

Cynthia Arroyo Portilla, Romain Fenouil, Camille Wagner, Cécilia Luciani, Margaux Lagier, Clément Da Silva, Fanny Hidalgo-Villeda, Lionel Spinelli, Mathieu Fallet, **Julie Tomas**, Jean-Pierre Gorvel, Hugues Lelouard (2023). *Peyer's patch phagocytes acquire specific transcriptional programs that influence their maturation and activation profiles*, Mucosal Immunology. DOI: 10.1016/j.mucimm.2023.05.009

Julie Tomas, Yoon Koo, Dimitri Popoff, Vilma Arce-Gorvel, Sean Hanniffy, Jean-Pierre Gorvel, Cyrille Mionnet (2021). PTX Instructs the Development of Lung-Resident Memory T Cells in Bordetella pertussis Infected Mice, Toxins. DOI: 10.3390/toxins13090632

Camille Wagner, Johnny Bonnardel, Clément Da Silva, Lionel Spinelli, Cynthia Arroyo Portilla, **Julie Tomas**, Margaux Lagier, Lionel Chasson, Marion Masse, Marc Dalod, Alexandre Chollat-Namy, Jean-Pierre Gorvel, Hugues Lelouard (2020). *Differentiation Paths of Peyer's Patch LysoDCs are Linked to Sampling Site Positioning, Migration, and T Cell Priming*, Cell Reports DOI: 10.1016/j.celrep.2020.03.043

Julie Tomas, Céline Mulet, Azadeh Saffarian, Jean-Baptiste Cavin, Robert Ducroc, Béatrice Regnault, Chek Kun Tan, Kalina Duszka, Rémy Burcelin, Walter Wahli, Philippe J Sansonetti, Thierry Pédron, (2016). High Fat diet induces rapid alteration in the spatial distribution and composition of the small-intestinal microbiota through the PPAR-γ-antimicrobial peptides-CFTR axis. Proc Natl Acad Sci U S A. DOI: 10.1073/pnas.1612559113

Julie TOMAS
tomas@ciml.univ-mrs.fr

Achille BROGGI, PhD
Group leader:
Innate Immunity at mucosal sites

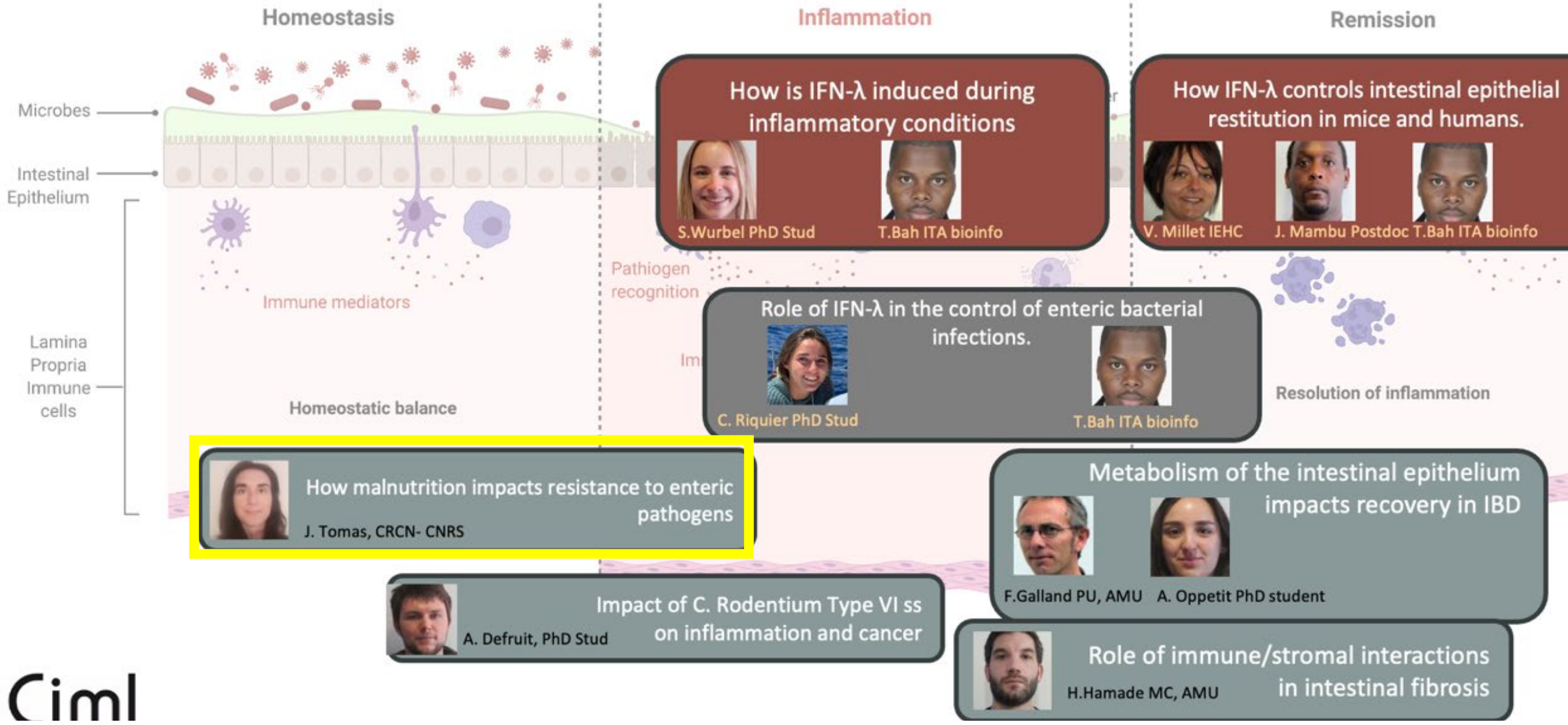
Ciml IMMUNOLOGY

cnrs

Inserm

Aix*Marseille université

AB LAB: Innate Immunity at mucosal barriers.



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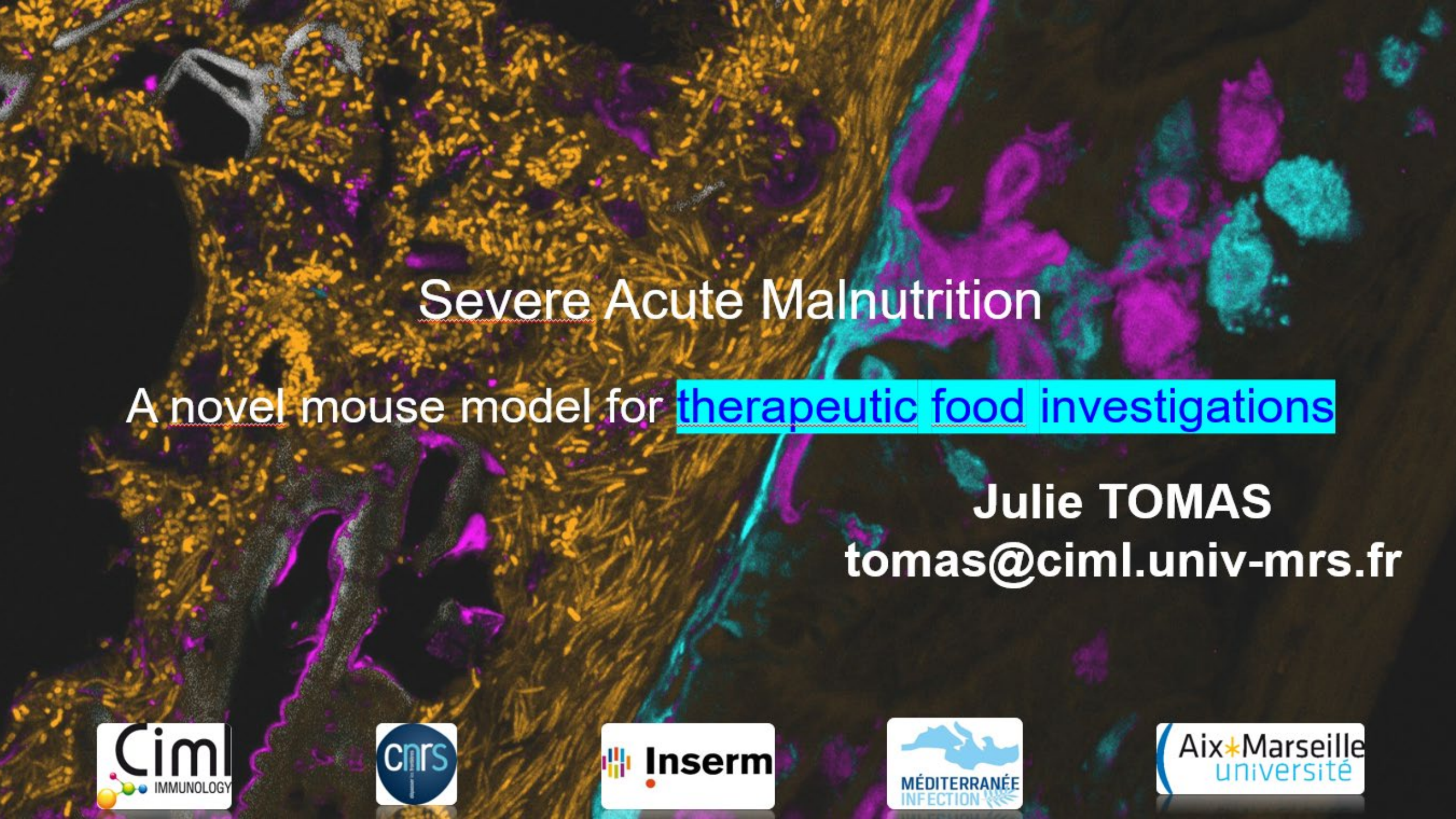


Severe Acute MalNutrition

A novel mouse model for therapeutic food investigations

Julie TOMAS
tomas@ciml.univ-mrs.fr

CIML IMMUNOLOGY · cnrs · Inserm · MÉDITERRANÉE INFECTION · Aix*Marseille université

Severe Acute Malnutrition: SAM

Causes	Consequences	Current therapies
Poverty, insalubrity Maternal nutritional status **Weaning** Non-diversified solid foods Protein deficiency Micronutrients deficiency **72% of wasting In LMIC**	Weight for Height Z-score (WHZ<-3) Intestinal atrophy & physiological defects Chronic intestinal inflammation Decreased vaccine effectiveness Reccurent Infections Immature intestinal microbiota	 **RUTF & derivatives ± Antibiotics** Weight gain Short-term effects Partial recovery

Few effective alternatives

Need to develop a pre-clinical model to decipher the complexity of SAM

New preclinical model to decipher the complexity of SAM
&
Develop sustainable therapeutic foods

Dynamic and critical period

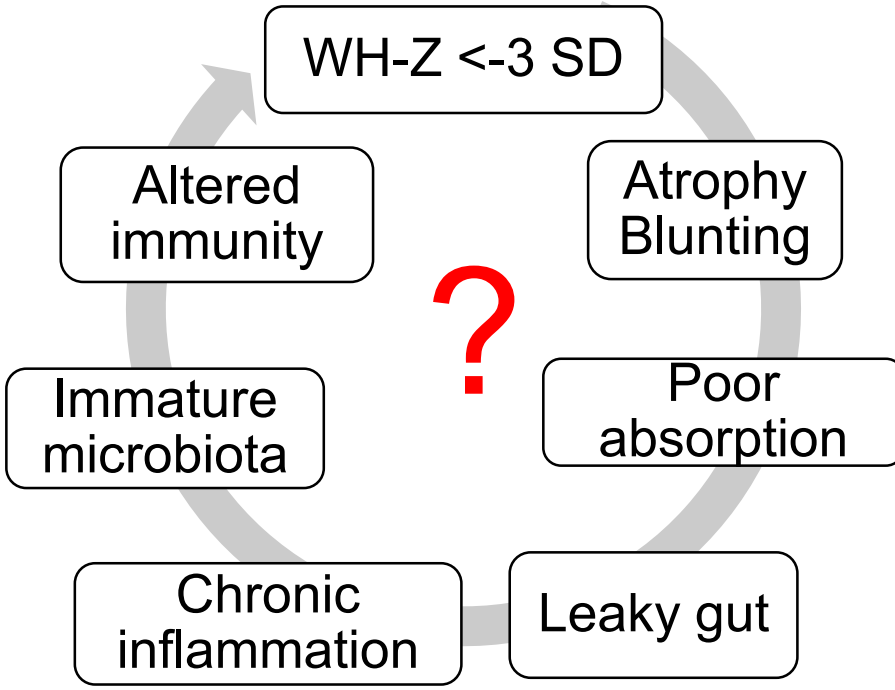
Mimic real-life situations

Maize

Isocaloric *vs* Ctrl diet
Low Protein
Low Fat
High carbohydrate

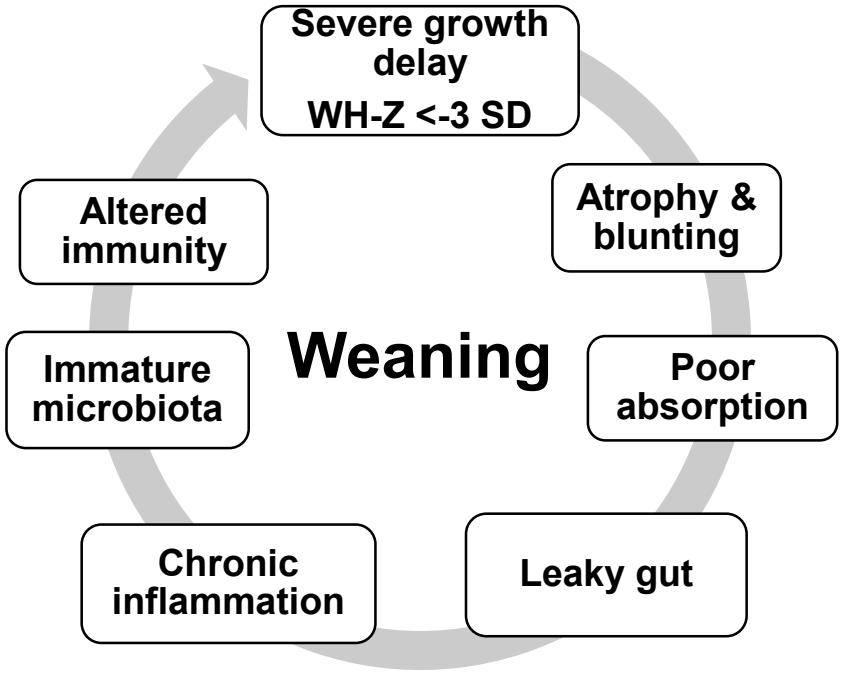
Micronutrient deficiencies

SAM features in Children



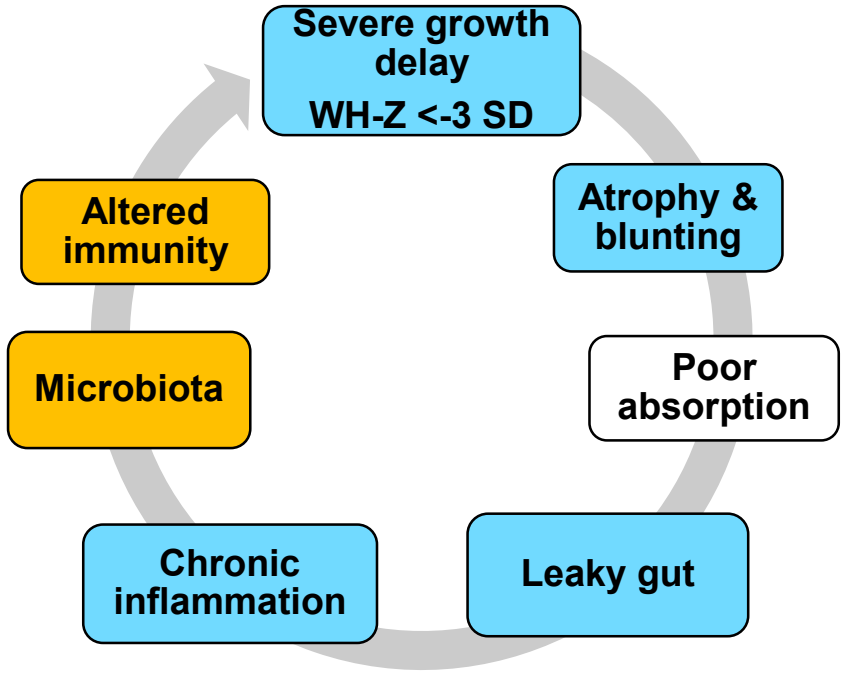
A novel mouse model for therapeutic food investigations

✓ SAM features in Children



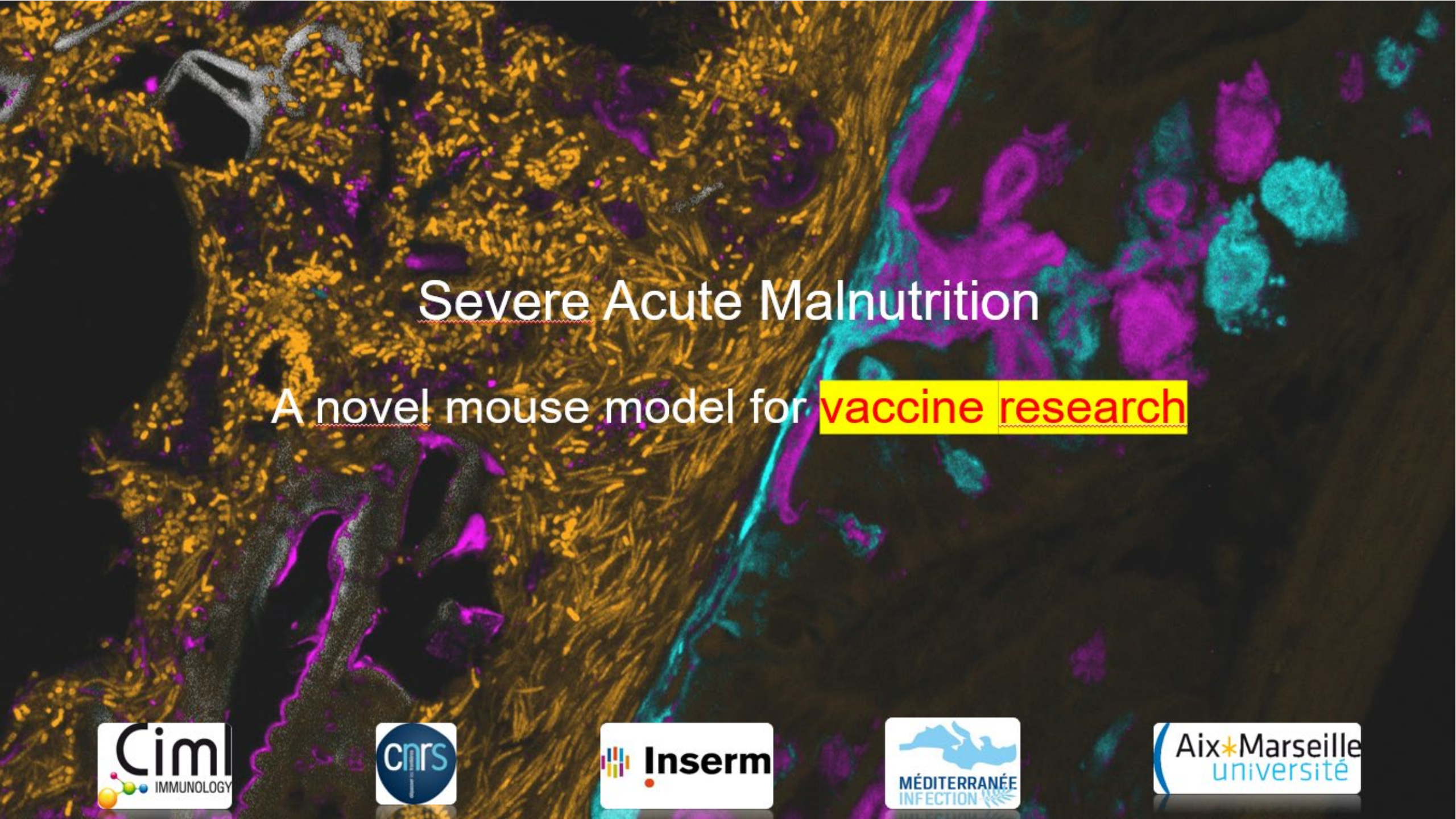
Nutritional intervention

✓ Improvements *vs* persistent alterations



A physiological mouse model of severe acute malnutrition reveals prolonged dysbiosis and altered immunity under nutritional intervention

Hidalgo-Villeda *et al.*, iScience 2023


Severe Acute MalNutrition
A novel mouse model for vaccine research
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Inserm
MÉDITERRANÉE
INFECTION
Aix*Marseille
université

Acknowledgements

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Rose Hardy
Alexandre Bonomo
Noémie Saettel
Juliette Olivier

Alumni:
Fanny Hidalgo Villeda
Cynthia Arroyo-Portilla
Cécilia Luciani
Dimitri Popoff
Margaux Lagier
Camille Wagner
Anthony Martins
Alice Desgardin
Clara Soufflet

Achille Broggi ‘s team

Histology: Lionel Chasson
Cytometry facility
Imaging Immunity
Animal facilities

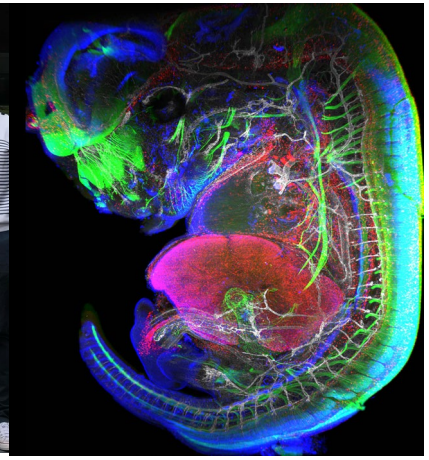
INRAE MICALIS
Muriel Thomas, Aurélia Bruneau, Claire Cherbuy

IHU Méditerranée Infection
Matthieu Million, Vincent Bossi, Sylvain Buffet, Enora Tomeï
CSUR collection

C2VN, Marseille
Catherine Defoort, Ljubica Svilar, Flavie Sicard & Jean-Charles Martin
Emmanuelle Reboul

Centuri
Thomas Vannier

Innate Lymphoid Cells in fetal and neonate immunity



Team Serge van de Pavert

The Innate lymphoid cell (ILC) family play critical roles in early defense, tissue repair, and maintaining immune balance. They act as the innate counterparts to T cells, responding rapidly to infections and environmental cues without antigen-specific receptors. Of this family, the Lymphoid Tissue inducer (LTi) cell is critically involved in lymph node (LN) formation. LN are crucial for adaptive immunity and develop early in the fetus through interactions between hematopoietic and stromal cells. Our team is offering three exciting research projects focused on understanding Innate Lymphoid Cell (ILC) ontogeny and LN development:

Project 1: Maternal Diet Impact on Fetal ILC differentiation

This project aims to analyze the role of key components of the maternal diet on LN differentiation in the offspring. Our previous work demonstrated that Vitamin A within the maternal diet affects fetal LTi cell differentiation[5]. Besides Vitamin A, other dietary products are thought to affect fetal LTi cell differentiation. You will analyze lymph nodes differentiation in embryos from mouse knockout strains strains for key metabolic enzymes. You will also explore how a high-fat diet affects fetal ILC and lymph node formation in offspring.

Project 2: Neuronal Influence on Lymph Node Formation

This project aims to determine the role of the nervous system in lymph nodes formation. We hypothesize that neurons provide crucial signals controlling LTi localization and differentiation. If neurons are absent or misplaced, lymph nodes may develop in incorrect locations or not at all. In this project, you will investigate the relationships between neurons and LTi cells and concomitant LN formation in embryos using mouse models with specific neuronal deletions.

Project 3: ILC Ontogeny and LTi Cell Differentiation

Lymphoid Tissue Inducer (LTi) cells are the predominant ILC type in the fetus, but the mechanisms behind this preference to differentiate into LTi cells within the embryo remain unclear. This project aims to uncover how precursor cells differentiate into LTi cells and other ILCs. Using various reporter mouse models, you will study the stages of ILC development and analyze their localization within the embryo.

Techniques You Can Learn:
- Whole-mount immunofluorescence, analysis with Imaris
- Section immunofluorescence, processing using ImageJ
- (Spectral) Flow cytometry, analysis by FlowJo

Serge van de Pavert vandepavert@ciml.univ-mrs.fr

Yann Kerdiles kerdiles@ciml.univ-mrs.fr

Carole Siret siret@ciml.univ-mrs.fr

Selected publications
1. Siret C, van de Pavert SA. **Methods Mol Biol.** 2024; 2713:297-306
2. Wang S, *et al.*, **Journal of Neuroinflammation** 2023 20-8
3. Siret C, *et al.*, **Nature Communications** 2022 13:7366
4. Simic M. *et al.*, **Cell Reports** 2020 Aug 11;32(6):108004.
4. Vivier E, van de Pavert SA, *et al.*, **Nature Immunology** 2016 17(7):790-794
5. van de Pavert SA, Ferreira M, *et al.*, **Nature** 508(7494):123-7 (co-first author)

http://www.ciml.univ-mrs.fr/science/lab-serge-van-de-pavert/development-immune-system

Innate immunity in *C. elegans*

PUJOL Nathalie

Group Leader DR CNRS

pujol@ciml.univ-mrs.fr

Mechanobiology / aECM / epidermis / skin / cytoskeleton / innate immune system

How is the innate immune response of the epidermis controlled by the mechanical properties of the extracellular matrix?

The **apical extracellular matrix** (aECM) of *C. elegans* exhibits remarkable mechanical properties, reflecting its intricate structure and composition. This protective outer layer is comprised of collagenous proteins forming a complex and periodically organized mesh-like network. **aECM damage** leads to the reorganization of the cytoskeleton and the activation of immune responses in the underlying epidermis. The mechanical connections between the aECM and the plasma membrane/cytoskeleton are currently uncharacterised.

We hypothesise that circumferential periodic collagens increase stretching anisotropy and could sense changes in tension, leading to cytoskeleton assembly. Using a **combination of genetics, cell biology and biophysics**, we are exploring the links between aECM damage, tension changes, and immune signaling in *C. elegans.* Our studies are expected to give fundamental insights into how the aECM affects immunity in other animals, including mammals.

Body stiffness is a mechanical property that facilitates contact-mediated mate recognition in Caenorhabditis **elegans**. Weng JW, Park H, Valotteau C, Chen RT, Essmann CL, Pujol N, Sternberg PW, Chen CH. **Curr Biol. 2023**

Meisosomes, folded membrane microdomains between the apical extracellular matrix and epidermis. Aggad D, Brouilly N, Omi S, Essmann CL, Dehapiot B, Savage-Dunn C, Richard F, Cazevieille C, Politi KA, Hall DH, Pujol R, Pujol N. **Elife. 2023**

Microtubule plus-end dynamics link wound repair to the innate immune response. Taffoni C, Omi S, Huber C, Mailfert S, Fallet M, Rupprecht JF, Ewbank JJ, Pujol N. **Elife. 2020**

Innate Immunity Promotes Sleep through Epidermal Antimicrobial Peptides. Sinner MP, Masurat F, Ewbank JJ, Pujol N, Bringmann H. **Curr Biol. 2021**

A Damage Sensor Associated with the Cuticle Coordinates Three Core Environmental Stress Responses in *Caenorhabditis **elegans***. Dodd W, Tang L, Lone JC, Wimberly K, Wu CW, Consalvo C, Wright JE, Pujol N, Choe KP. **Genetics. 2018**

Neuroimmune regulations of tissue regeneration

Guillaume Hoeffel

CR1 (CRCN) Inserm

hoeffel@ciml.univ-mrs.fr

Team Sophie UGOLINI

Evolving in Sophie Ugolini's Team "Neural regulation of Immunity" in CIML, my research focuses on **how immune cells respond to sensory neuron** cues in periphery and more generally how the central nervous system orchestrates immune defense.

Discovering that macrophages emerged very early during embryonic development changed ours views about how macrophages sense and interact with their surroundings, throughout the lifespan. **Tissue-resident macrophages** are now considered key players in tissue development, repair and regeneration and we are using spectral/light sheet imaging, high dimensional cytometry, and single-cell transcriptomics, to decipher the non-canonical functions allowing macrophages to regulate tissue homeostasis (e.g. in type 2 diabetes and in cancer). We also observed that the central nervous system can integrate peripheral information upon tissue injuries, and orchestrate the myeloid cell healing responses, suggesting an integral brain-to-periphery axis constantly tuning tissue integrity. Deciphering the nature of peripheral and central neuronal circuits promoting tissue integrity and repair will provide new leads for regenerative medicine strategies.

Neuroimmunologie is an emerging field of research at the crossroad between developmental immunologie and neurosciences, providing exciting opportunities for young and creative minds. The campus is also located in the unique and vibrant environment of Luminy, South of France city of Marseille, allowing adventurous fellows to discover the national park of Calanques.

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