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Milk microbiota: physiological and health implication.

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Internationalization at INRA

IAL BactInflam Seminar
Belo Horizonte August 19-21, 2019





An international strategy and an adapted action plan: 3 objectives

1- An international policy reinforcing scientific priorities and impact.

To develop some major programs combining European and international partnerships, opening these cooperations to training - through partnership with higher education - and to innovation.

2- Strengthening research and expertise capacity on European and global issues.

The aim is to strengthen INRA's research and expertise on a European and global scale, in order to develop its impact, influence and international relevance.

3- Renovated tools of European and international cooperation and attractiveness.

Facilitate the alignment of cooperation instruments in the national, community and international framework, while creating incentive tools that strengthen the participation of INRA teams in these instruments and attractiveness for international PhD students and researchers.



Tools for international cooperation

1- Bilateral.

International Associated Laboratory (with higher education)
International Joint Unit
Joint Linkage Calls (agreement and joint calls for mobility)

2- Multilateral.

International Research Network, with higher education
International Priority Program
Multilateral mobility

Objectives for 2025:

~30 International Associated Laboratories (9 IAL in 2018)
~12 International Research Networks (3 in 2018)
5 to 6 International Joint Units or International Priority Programs



International Associated Laboratory

(Laboratoire International Associé / LIA)

Kick off meeting
Belo Horizonte May 22nd 2018

Bact-Inflam

INRA-UFMG



A long standing and fruitful collaboration



STLO Rennes
MICALIS Jouy en Josas

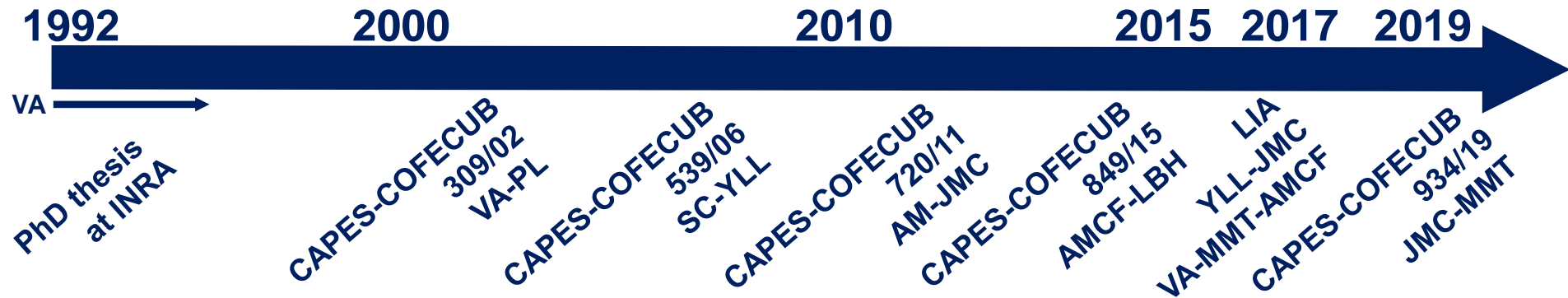


UFMG
Belo Horizonte

A long standing and fruitful collaboration



PL and YLL
first mission to Brazil



A long standing and fruitful collaboration



Productions:

90+ publications and book chapters

Talks in international and national congresses (SBM, SGM...)

Seminars in Brazilian universities

Supervision:

15+ Brazilian post-docs

20+ Brazilian docs (co-tutorship)

Fundings:

CAPES-COFECUB, CNPq, Région Bretagne, INRA, EU (MSCA)

How to turn inter-personal relationships into a wider, perennial structure?



« Rien ne se crée sans les hommes, rien ne dure sans les institutions »

Jean Monnet, l'un des pères fondateurs de l'Europe.

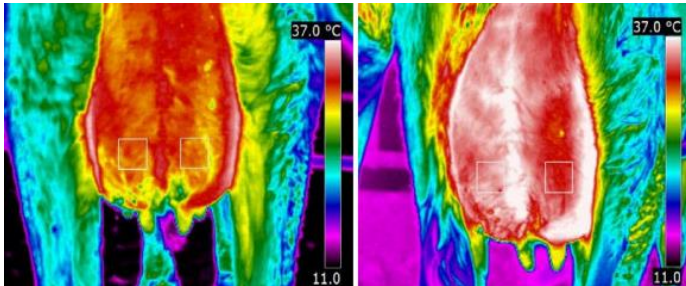
LIA : Laboratoire International Associé (LIA)

Launched by INRA in 2014

Inflammatory diseases occur in both humans and animals.
The Bact-Inflam project will focus on 2 of them.



Inflammatory bowel diseases (IBD)



Ruminant mastitis

Both diseases are serious issues for human and vet medicines.



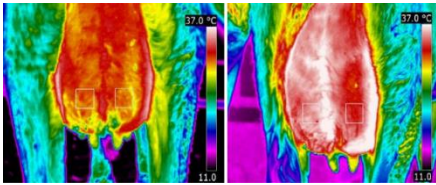
Beneficial bacteria (propionic acid-, lactic acid- or commensal- bacteria), and compounds thereof, could serve as complements or alternatives to current anti-IBD treatments and to antibiotics used in the prevention and treatment of mastitis.

Bact-Inflam objectives



- To identify bacterial determinants involved in pro- or anti-inflammatory processes in various contexts (IBD and mastitis)
- To characterize inflammatory processes with, as a start point, our models of mammary gland and gut

Bact-Inflam strategy



- * Characterization of the inflammation process and of the bacteria involved in the inflammation (e.g. *S. aureus* / mastitis)
- * Determination of microbiota composition associated to inflamed or healthy organs
- * Identification of marker species (dysbiosis/inflamed or eubiosis/healthy)
- * Characterization of these biomarkers at the cellular and molecular levels
- * Validation on animal models
- * Development of new therapeutic strategies and or alternatives to allopathic treatments, based on the use of immunomodulatory bacteria or bacterial compounds.



Laboratory of Cellular and Molecular Genetics (LGCM)

Department of General Biology. Expertise in molecular bacteriology and genomics (and NGS-based omics approaches) and in bioinformatics and molecular tools applied to bacteria of veterinary (with *C. pseudotuberculosis* as a model) and biotechnological interest (lactic acid bacteria).

Pr Vasco Azevedo, Full Professor at UFMG (1A / CNPq). Member of Brazilian Academy of Science.



Laboratory of Immunopharmacology

Study the recruitment of leukocytes at the sites of inflammation and its functional consequences, *in vivo*, at the scale of an organ and or of a system using immunopharmacology and molecular biology. Aims at developing new anti-inflammatory treatments with reduced side effects.

Pr Mauro Martins Teixeira, Full Professor at UFMG (1A /CNPq). Member of Brazilian Academy of Science and the Third World Academy of Sciences (TWAS).



Laboratory of Immunobiology

(Department of Immunology and Biochemistry at ICB). Study the process involved in the physiology and the stimulation of the immune system at the mucosal level with focus on allergy, immunotolerance, immune response at various stage of life.

Pr Ana Maria Caetano de Faria, Full Professor at UFMG (1B /CNPq).



Team MicroBio UMR1253 STLO INRA Agrocampus Ouest Rennes

Department of Microbiology of the Food Chain. Expertise in food and veterinary microbiology. Studies bacteria-bacteria (in dairy and egg products) and bacteria-host interactions (in mastitis and IBD).

Dr Yves Le Loir, Research Director, Director of UMR1253 STLO. Other members involved: Eric Guédon (DR2), Gwenaël Jan (DR2), Sergine Even (CR1), Nadia Berkova (CR1), Aurélie Nicolas (IR), Lucie Rault (TR), Martine Deplanche (TR).

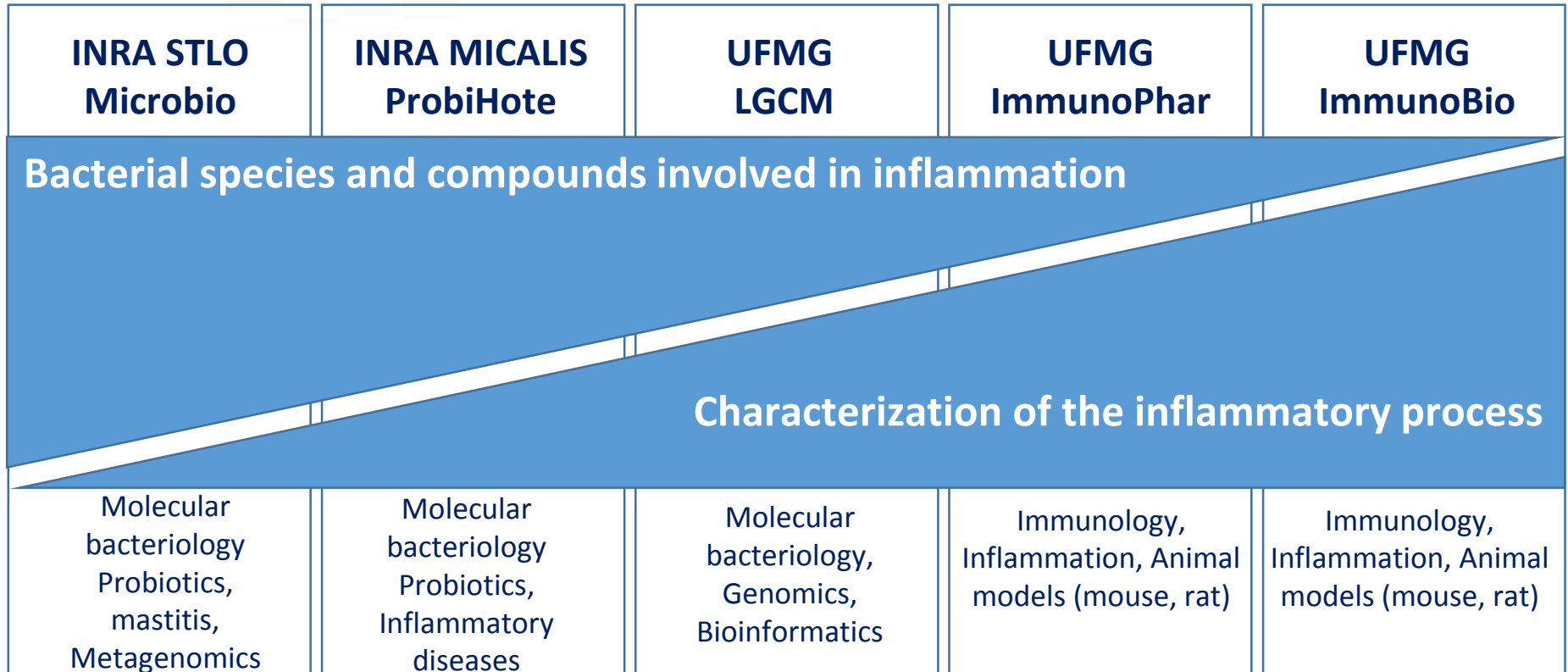


Team ProbiHôte Institut Micalis INRA AgroParisTech Jouy en Josas

Dept of Human Nutrition. Expertise in commensal and probiotic bacteria, bacteria-gut interactions, IBD, bacteria-cell DNA transfer.

Dr Jean-Marc Chatel, Research Director, PI of Immuno-modulation and DNA transfer group. Other members involved: Philippe Langella (DR), Luis Bermudez (DR), Harry Sokol (MD-PhD), Claire Cherbut (IR) Muriel Thomas (DR), Florian Chain (IR), Denis Mariat (IR), Véronique Robert (AI).

Complementary expertises of the teams



Bact-Inflam activities

Bact-Inflam sessions

- Kick off session
Belo Horizonte, Brazil, May 2018
- Seminars
Belo Horizonte, Brazil, August 2019 + August 2021
- Meeting of the steering committee (coordinators)
- Bact-Inflam summer school
« Bacteria-host Interactions and inflammation »
3rd year (in 2020), in France.
- Final meeting
5th year (in 2022), Belo Horizonte, Brazil.

Annual meetings

Scientific partners will attend annual meeting in France or Brazil

Bact-Inflam website

News and results communication