



**4th Symposium of the Network on
Monocytes-Macrophages-Microglies
Bordeaux, 26 Novembre, 2021**



The symposium will be in hybrid format

8h30 – 8h45 **OPENING OF THE REGISTRATION DESK**

8h50 – 9h00 **SYMPOSIUM INTRODUCTION**

Florence OTTONES (CRMSB, BDX) & Aksam MERCHED (BMGIC, BDX)

9h00 – 10h40 **SESSION 1: Role of lipid mediators in phagocytosis.**

Chairs: Pr Aksam MERCHED (BMGIC, BDX) & Dr Florence OTTONES (CRMSB, BDX)

9h00 – 9h30 **KEYNOTE LECTURE 1 – Pr Magnus BÄCK** (Karolinska, Stockholm)

“Macrophages and lipid mediators in the resolution of inflammation in atherosclerosis and aortic valve stenosis.”

9h35 – 10h05 **LECTURE 1 – Pr Agnès NADJAR** (Neurocentre Magendie, BDX, France)

“Role of lipid metabolism in microglial function during neurodevelopment.”

10h10 – 10h40 **SESSION 2: Flash Poster Presentation**

*10h10 – 10h20: **Julie GIRAUD** (Immunoconcept, UMR 5164, BDX) “Exploiting immunity of hepatocellular carcinoma to improve the treatment of patients.”

*10h20 – 10h30: **Dr Krisztina NIKOVICS** (Imagery Unit, French Armed Forces Biomedical Research Institut, Brétigny sur Orge) “Non-specific binding, a limitation of immunofluorescence method to study macrophages in situ.”

*10h30 – 10h40: **Damien LAOUTEOUET** (INSERM U1183, montpellier) “Origin and role of macrophage subsets in the pathophysiology of osteoarthritis.”

10h40 – 11h00 **Coffee break / Poster Session**

(20’)

Exhibition & Sponsors



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11h00 – 12h20 **SESSION 3: Monocytes & Macrophages and Cancer.**

Chairs: Dr Gabriel COURTIES (IRMB, Montpellier) & Dr Florence APPARAILLY (IRMB, Montpellier)

11h00-11h30 **KEYNOTE LECTURE 2 – Dr Massimiliano MAZZONE (VIB-KU, Leuven)**

“A metabolic cross-talk between cancer cells and TAMs sustains immunosuppression and immunotherapy resistance.”

11h35-12h05 **LECTURE 2 – Dr Pieter GOOSSENS (MUMC, Maastricht)**

“Imaging myeloid phenotypes in their tissue micro-environment.”

12H10-12H20 **OSE Immunotherapeutics**

“Immune targets in cancer.”

12h20-14h00 *Lunch / Networking / Poster Session*
(1H40) *Exhibition & Sponsors*



14:00 - 15:30 **SESSION 4: Monocytes & Macrophages and metabolism.**

Chairs: Dr Anne-Karine BOUZIER (CRMSB, BDX) & Pr Agnès NADJAR (Neurocentre Magendie, BDX)

14h00-14h30 **KEYNOTE LECTURE 3 – Dr. Laurent YVAN-CHARVET (UMR INSERM U1065/UNS -**

C3M, Nice)

“Macrophage glutaminolysis in cardiometabolic diseases.”

14h35-14h55 **LECTURE 3 – Dr Johan GARAUDE (IRMB, Bordeaux)**

“Innate immune control of mitochondrial metabolism.”

15h00-15h25 **SESSION 4: Flash Poster Presentation**

*15h00-15h10: **Dr Florence OTTONES** (CRMSB, BDX) “The specific optical properties of foamy macrophages may be due to their specific metabolism and/or lipid handling.”

*15h15-15h25: **Janaína GREVELINGER** (CRMSB, BDX) “Distinct functional phenotypes between major models of foamy macrophages: consequences and impact in the field of therapeutic research.”

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15h30-16h00

Coffee break / Poster Session

(30')

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16h00-16h30

SESSION 5: Imaging Macrophages Chairs: Dr Edouard GERBAUD (CRCTB U1045, BDX) & Dr Gisèle CLOFENT-SANCHEZ (CRMSB, BDX)

16h00-16h30

KEYNOTE LECTURE 4 – Dr. Carlos PEREZ-MEDINA (CNIC, Madrid)

“Imaging Macrophages with positron emission tomography.”

16h40-17h20

SESSION 6: flash poster presentation

*16h40-16h50: **Dr Jan Pieter KONSMAN** (INCIA UMR 5287, BDX) “Brain Perivascular Macrophages Do Not Mediate Interleukin-1-Induced Sickness Behavior in Rats.”

*16h50-17h00: **Dr Sylvain FRAINEAU** (enVI/UMR U1096, Rouen) “Ezh2 as an epigenetic checkpoint during monocyte differentiation: a potential target for cardiac recovery after myocardial infarction.”

*17h00-17h10: **Dr Pauline HENROT** (CRCTB, INSERM U1045, BDX) “Muscarinic receptor M3 activation promotes COPD fibrocyte contraction.”

*17h10-17h20: **Edmée EYRAUD** (CRCTB, INSERM U1045, BDX) “A high probability of short-range interactions between fibrocytes and CD8+ T cells potentiates the inflammatory response in COPD.”

17h30-17h45

Awarding of prizes for the best oral presentation and the best poster

17h45-18h00

Concluding remarks

18h00-19h00

Cocktail reception with Malikal, afro-tropical rhythms



19h30-22h30

Diner and Networking

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Invited speakers

KEYNOTE LECTURE 1 – Pr Magnus Bäck (Karolinska, Stockholm)



Associate Professor Magnus Bäck is senior consultant in cardiology and research team leader at the Center for Molecular Medicine. The research undertaken has two main focuses: lipid mediators and valvular heart disease.

Lipid mediators can either act as proinflammatory stimuli (e.g. leukotrienes) or participate in the resolution of inflammation (e.g. lipoxins). Our aim is to unravel the role of lipid mediators in cardiovascular inflammation and its resolution, and how these pathways can be targeted as therapeutic interventions in cardiovascular disease. Our research has provided mechanistic insights into the role of leukotriene signaling in atherosclerosis, and through a pharmacoepidemiological approach we translated this into clinical findings, indicating beneficial effects of leukotriene receptor antagonism in terms of reducing cardiovascular risk.

The third most common cardiovascular pathology, after ischemic heart disease and hypertension, is valvular heart disease. We were the first to identify a possible role of leukotriene signaling in the calcification and obstruction of the aortic valve causing aortic stenosis. Since no medical treatment has hitherto proved to be efficacious in slowing down valvular calcification, we are presently further exploring the potential therapeutic role of the lipid mediator (and other) pathways in aortic stenosis.

The group is focusing on translational research, with approaches ranging from clinical epidemiological, echocardiographic and biomarkers studies, through experimental analysis of human tissues and cells, to basic experimental mechanistic studies.

9:00 – 9:30 “Macrophages and lipid mediators in the resolution of inflammation in atherosclerosis and aortic valve stenosis.”

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LECTURE 1 –Agnès Nadjar (Neurocentre Magendie, Bordeaux)



Professor of neurosciences at the University of Bordeaux, Agnès Nadjar is a member of the Physiopathology of energy balance and obesity team at the Neurocentre Magendie (Inserm and University of Bordeaux - Bordeaux Neurocampus). Specialist in the interactions between nutrition and the brain, her pioneering work on the effect of lipid nutrients on microglial function and neuroinflammation processes aims to lead to the development of innovative treatments in the fight against obesity.

In a recent study, that she will present during the conference, her team studied the role of polyunsaturated fatty acids (omega-6 and 3) on microglial lipid metabolism and the consequences on the activity of neighboring neurons. Their work has shown that a drop in omega-3 intake during development exacerbates the phagocytic and inflammatory functions of the microglia, leading to neuronal dysfunctions.

Agnès Nadjar, was recently appointed junior member of the IUF (University Institute of France).

9:35-10:05 “Role of lipid metabolism in microglial function during neurodevelopment.”

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KEYNOTE LECTURE 2 – Dr Massimiliano Mazzone (VIB-KU Leuven Center for Cancer Biology)



Solid tumors are not simply clones of malignant cells. Instead, they can be considered dysfunctional organs, end-product of the altered interplay, within the **tumor microenvironment (TME)**, among cancer cells and stromal cells (e.g. endothelial cells, macrophages, neutrophils, T cells, etc.). This concept has thrown a spotlight on the **TME** as the central unit governing tumor progression, metastasis and resistance to antitumor therapies.

Our mission is to bridge the current gap between **cancer cell biology** - autonomous traits of malignant cells - and **tumor biology** - non-autonomous traits where, the unique features of the TME along with its cellular cross-talks are the main drivers of malignancy. We believe that only a comprehensive understanding of the environmental cues and molecular pathways that participate in the interaction between cancer cells and stromal cells within the harsh TME (at the primary site and metastatic niche) will enable us to **conceive brand new and specific therapeutic strategies**.

De facto, the research topics of the lab span the fields of **tumor and inflammation**, focusing on functional characterization of the **hypoxia-response**, a key environmental cue of the TME, on the consequent involvement of **tumor metabolism** in dictating the immune landscape, and on how **immune cell positioning** within the tumor impacts on function and phenotypic skewing of immune cells. To address these points, we take advantage of tissue-specific gene targeting and pharmacologic approaches in mice and combine the phenotype discovery with an extensive phenotypic characterization. In particular, we are using state-of-the-art genetic, cell biological, biochemical and structural methods, all complemented by specific multi-omics profiling and following (meta)-analysis of human and mouse datasets (*i.e.* transcriptomic and metabolomics data). Our investigations will increase the knowledge on the molecular and cellular partners controlling inflammatory cell skewing in the TME and its significance in cancer and those conditions where imbalanced immune response contributes to the pathogenesis of life-threatening disorders (*i.e.* chronic infections and autoimmunity).

11:00 – 11:30 “A metabolic cross-talk between cancer cells and TAMs sustains immunosuppression and immunotherapy resistance.”

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LECTURE 2– Dr Pieter Goossens (MUNC, Maastricht)



Pieter Goossens, PHD, post doc, in the lab of **Prof. Erik Biessen** at the Department of Pathology, studies macrophage phenotypical and functional heterogeneity in the atherosclerosis context. Macrophages display a high degree of phenotypic heterogeneity that reflects the cells' micro-environment. Pieter Goossens combines classical histology with transcriptomics, multi-label fluorescent microscopy and mass spectrometry imaging to study the spatial distribution of macrophage subsets in human and murine atherosclerotic plaques and the impact of local triggers on their phenotype and functions.

Pr. Erik Biessen's current passion is to deploy systems medicine approaches, to understand and define critical innate immune pathways in human atherosclerosis and cardiometabolic comorbidities and to validate the relevance of these processes for disease progression by intervention studies in in vitro and in vivo models.

Hereto, the group has developed a new high content microscopy based functionomics platform to measure macrophage functional profile at unprecedented resolution and speed and a technology pipeline for spatial mapping of macrophage phenotype and molecular context.

11:35 – 12:05 “Imaging myeloid phenotypes in their tissue micro-environment.”

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KEYNOTE LECTURE 3 – Dr. Laurent YVAN-CHARVET (UMR INSERM U1065/UNS - C3M, Nice)



Doctor in physiology and endocrinology 'summa cum laude' from the University of Paris XI since 2005, specialist in cardiometabolic and inflammatory diseases, his postdoctoral experience, at Columbia University in New York in the United States, opened his themes of research towards understanding the metabolic disturbances that cause inflammation and cardiovascular complications. This work on the role of cholesterol metabolism on hematopoietic stem cells, monocytes and platelets has been awarded numerous international prizes such as the 'Roger Davis Award' from the American Kern Society of Lipidology in 2010, finalist for the prize 'IH Page Investigator Award' from the American Association of Cardiology in 2011, the EAS award from the European Atherosclerosis Society in 2013 and most recently the Daniel Steinberg award from the American Society of Atherosclerosis, Thrombosis and Vascular Biology in 2015.

After participating in the development of new therapeutic avenues to fight against cardiovascular diseases within the pharmaceutical company Pfizer, he was recruited at Inserm thanks to an excellent funding from Atip-Avenir in 2013 and was promoted to Research Director in 2015. His research work focuses on the identification of new metabolic pathways at the origin of inflammatory and cardiovascular complications with a central aim of proposing new perspectives for the prognosis and treatment of these pathologies. This work was recently funded by a European Consolidator Grant contract in 2017.

14:00 – 14:30 “Macrophage glutaminolysis in cardiometabolic diseases.”

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LECTURE 3– Dr Johan Garaude (IRMB, BDX)



Project description:

Metabolic reprogramming has recently emerged as a major feature of innate immune cells. At the core of immune cell metabolic reprogramming is the mitochondrion, a bioenergetic organelle that also serves as an immune signaling platform. Our work thus aims at unraveling the structural and functional adaptations of the mitochondrial respiratory chain and metabolism and their relevance for innate immune cells mediated antibacterial immunity. We specifically assess the connection between innate immune receptors engagement by microbial products and the electron transport chain regulation. In turn, we evaluate the innate immune consequences of cellular metabolism dysfunctions and mitochondrial respiratory chain disorders.

Biosketch:

Dr Johan Garaude got his Ph.D. in Molecular Endocrinology in 2007 from the University of Montpellier, France for his work on mitogen-activated protein kinases (MAPK) and activating-protein 1 (AP-1) in leukemogenesis and T cell activation. In 2008, he joined the laboratory of Julie Magarian Blander at the Mount Sinai School of Medicine in New York where he investigated how a dual ligand for innate immune receptors can be used to generate potent antitumor immune responses and contributed to establish that sensing of infected apoptotic cell by dendritic cells is natural inducer of TH17 cell differentiation. In 2011, he got a permanent position at INSERM, France, and started investigating the metabolic adaptations and mitochondrial biology in innate immune cells and how this contributes to antimicrobial responses.

14:35 – 14:55 “Innate immune control of mitochondrial metabolism.”

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KEYNOTE LECTURE 4 – Dr. Carlos PEREZ-MEDINA (CNIC, Madrid)



Dr. Carlos Pérez Medina holds a BSc in Chemistry (2003) and a PhD in Organic Chemistry (2008), both obtained in Madrid (Spain). He continued his training as a synthetic chemist during a postdoctoral stay at Trinity College Dublin. In 2009 he joined Dr. Erik Arstad's lab at University College London, where he specialized in radiochemistry and molecular imaging, and continued working on medicinal chemistry. Since then, he has carried out his research in the biomedical sciences with a focus on positron emission tomography (PET) imaging. In 2013 he moved to New York (USA) to join the Nanomedicine lab at Mount Sinai. In collaboration with Drs. Zahi Fayad and Willem Mulder, he worked on the integration of imaging techniques into nanomedicine development. After two years of postdoctoral training, he was hired as junior faculty and later promoted to Assistant Professor. During this time, he also worked on the development of PET tracers for atherosclerosis phenotyping. In November 2018, Dr. Pérez Medina was recruited by CNIC (Madrid, Spain) to lead the Nanomedicine and Molecular Imaging lab. His current research focuses on nanotherapy development for cancer and cardiovascular disease, and radiotracer development for non-invasive phenotyping of cancer and atherosclerosis by PET.

16:00 – 16:30 “Imaging Macrophages with positron emission tomography.”

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2021**

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**4th SYMPOSIUM OF THE
OCCITANIE NETWORK ON
MONOCYTES –
MACROPHAGES –
MICROGLIES**

**FRIDAY, 26 NOVEMBER 2021
Bordeaux**

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