**Master 2 internship project**

**Year 2023-2024**

**Laboratory/Institute:** TIMC **Director:** Pr A. Maureau-Gaudry

**Team:** T-RAIG **Head of the team:** Pr Athan Baillet

**Name and status of the scientist in charge of the project: Bertrand Favier HDR: Yes**

**Address:** TIMC (Translational Innovation in Medicine & Complexity, UMR5525), team T-RAIG

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**Program of the Master’s degree in Biology:**

**🗵** Immunology, Microbiology, Infectious Diseases **☐** Structural Biology of Pathogens

**☐** Physiology, Epigenetics, Differentiation, Cancer **☐** Neurosciences and Neurobiology

**Title of the project: Dysbiosis in a mouse model of reactive arthritis**

Objectives (up to 3 lines):

Using the SKG mice model of spondylarthritis, the objective is to explore the dysbiosis in microbiote induced by vaginal infection and its impact in a model of reactive arthritis

Abstract (up to 10 lines):

Spondyloarthritis (SpA) comprises a cluster of diverse inflammatory diseases including reactive arthritis, with similar genetic predisposition and clinicals symptoms such as psoriasis, uveitis, inflammatory bowel diseases ulcerative colitis and chronic inflammation in the peripheral and axial joints.

The SKG mice have an impaired TCR signaling leading to an increased numbers of IL-17-skewed autoreactive T cells and FoxP3 altered Treg cells; they are incapable of suppressing arthritis development.

We have demonstrated the role of macrophages in Chlamydia induced reactive arthritis in SKG mice. We are investigating the role of neutrophils, and will go further by testing the impact of less pathogenic bacteria involved in vaginal dysbiosis, on the arthritis development and gut microbiota.

Methods (up to 3 lines):

Bacterial culture, cell culture for intracellular bacteria growth and titration, flow cytometry, DNA sequence analysis, statistics, animal testing

Up to 3 relevant publications of the team:

Romand, X., Liu, X., Rahman, M.A., Bhuyan, Z.A., Douillard, C., Kedia, R.A., Stone, N., Roest, D., Chew, Z.H., Cameron, A.J., Rehaume, L.M., Bozon, A., Habib, M., Armitage, C.W., Nguyen, M.V.C., Favier, B., Beagley, K., Maurin, M., Gaudin, P., Thomas, R., Wells, T.J., Baillet, A. Chlamydia-infected Macrophages mediate Interleukin-23 and Tumor Necrosis Factor-driven Reactive Arthritis in SKG Mice. Arthritis Rheumatol. 2021 Jan 16.

Broche, L., Favier, B., Rougé-Labriet, H., Drevet, S., Lardy, B., Brun, E., Lemasson, B., 2021. Calcified cartilage revealed in whole joint by X-ray phase contrast imaging. Osteoarthritis and Cartilage Open 2021 Jun 1;3(2):100168.

Requested domains of expertise (up to 5 keywords):

Microbiology, statistics, immunology