Internship proposition
(One-page max)
Master 2 GP Immunology & ImmunoIntervention (I^3)
2024-2025

Lab: UMR1229 RMeS

Team: 1 REJOINT

Name and position of the supervisor: Frédéric BLANCHARD (DR Inserm) et Benoit LE GOFF (PU-PH)

Email of the supervisor: Frederic.blanchard@univ-nantes.fr ; Benoit.LEGOFF@chu-nantes.fr

Candidate (if internship filled): Manon Bauerheim

Title of the internship: Characterization and new therapeutic options for pigmented villonodular synovitis

Summary of the internship proposal:
Pigmented villonodular synovitis (PVNS) is a rare joint disease characterized by proliferation of the synovial membrane leading to pain, functional discomfort and potential bone or cartilage destruction. This pathology affecting adults between 30 and 50 years old has a significant impact in terms of quality of life for patients with an often chronic course. If localized forms are mainly treated surgically, diffuse forms have a high recurrence rate after surgery which can also be harmful to the joint. A better understanding of the pathophysiology of the disease and the involvement of CSF1 in particular has enabled the development of systemic treatments targeting this pathway. Indeed, PVNS is associated with the presence of mutated fibroblastic cells, often carrying a chromosomal translocation, leading to the overexpression of colony stimulating factor 1 (CSF1 or M-CSF), then the recruitment of macrophages expressing the CSF1 receptor (CSF1R) which can differentiate into different macrophage subtypes (giant cells, histiocytes, foamy macrophages, siderophages). However, the response to systemic treatments such as kinase inhibitors targeting the CSF-1 pathway remains partial, estimated at 30% to 50% at the cost of significant adverse effects leading to very frequent treatment discontinuations.
This project aims to i/ participate in a biocollection of patients with PVNS; ii/ explore the mechanisms leading to the development of synovitis (inflammation, genetic mutations) using high-throughput RNAseq technologies iii/ evaluate in vitro the biological activity of several drugs, in particular those targeting the CSF1 pathway, on tissues/cells from patients with PVNS. Immunohistochemistry, RTqPCR, flow cytometry and culture/co-culture techniques will be used.

Options(s) linked to the project:
☐ Clinical Research *(Recherche clinique)*
☐ Data analyst *(Recherche et Analyse de Données Biologiques)*
☒ Experimental Biology *(Recherche expérimentale)*