Internship Proposition
(one page max)

Master 2 GP Immunology & ImmunoIntervention (I^3)
2025-2026

Lab:
CR2TI UMR 1064, NANTES ; https://cr2ti.univ-nantes.fr/

Team:
Team 4
Deciphering organ immune regulation in inflammation and transplantation (DORI-t)

Name and position of the supervisor:
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Candidate (if internship filled):
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Title of the internship:
In vitro functional study of autoreactive T lymphocytes from patients with autoimmune liver disease

Summary of the internship proposal:
Autoimmune liver diseases are rare immune disorders (autoimmune hepatitis (HAI), primary biliary cholangitis (PBC) and primary sclerosing cholangitis (PSC)) that require long-term, non-curative treatment. The destruction of liver cells is accompanied by an infiltrate of CD4 T cells , CD8 T cells and plasma cells. The importance of MHC class II alleles in predisposing to these diseases, and the presence of specific autoantibodies targeting distinct self-antigens, are strong arguments in favor of a central role for antigenic presentation to CD4 T cells in the pathogenesis of these diseases.
In the laboratory, single-cell analysis of hepatic self-antigen-specific CD4 T cells has enabled us to highlight the transcriptomic signature and phenotype of circulating auto-reactive CD4 T cells in patient blood. We are now able to isolate these cells from peripheral blood for functional analysis.
The aim of the M1 internship will be to participate in the development of in vitro functional assays to understand the role of these cells in autoimmune pathology. The development of in vitro functional assays will enable us to target specific signaling pathways previously identified at transcriptomic level.
Autoreactive CD4 T cells will be studied for their ability to: 1) respond to TCR stimulation; 2) induce B cell differentiation; 3) regulate the immune response; 4) assist CD8 T cell activation and differentiation.
Proposed Techniques: FLOW CYTOMETRY, CELL CULTURE, ELISA, RT-QPCR
Option(s) linked to the project:

☐ Clinical Research Profile (Recherche Clinique)
☐ Data Analyst Profile (Recherche et Analyse de Données Omiques)
X Experimental Biology Profile (Recherche Expérimentale)

Form to be sent by email to : gpi3@univ-nantes.fr