Internship Proposition
(one page max)

Master 2 GP Immunology & ImmunoIntervention (I^3)
2026-2027

Lab: CR2TI

Team: Team 4

Name and position of the supervisor: Amédée RENAND CRCN Inserm

Email of the supervisor: amedee.renand@univ-nantes.fr

Candidate (if internship filled): Elisa BODAN

Title of the internship: Analysis of the antigenic reactivity of cytotoxic CD8 T cells in autoimmune hepatitis

Summary of the internship proposal:

Autoimmune hepatitis is characterized by the progressive destruction of liver tissue by immune cells. In this disease, various types of immune cells accumulate in the liver. Among them, T and B lymphocytes are the most prevalent. There is strong evidence suggesting that CD8 T lymphocytes play a central role in hepatocyte death, due to their cytotoxic capacity. However, it remains difficult to determine whether this cytotoxic activity results from a specific response directed against an autoantigen expressed on the surface of hepatocytes, or from “bystander” activation.

In the laboratory, we have demonstrated a link between the presence of specific autoantibodies, such as anti-SLA and anti-LKM1, and the presence of CD4 T cells specific to the autoantigen recognized by these autoantibodies (SepSecs and Cyp2D6, respectively). Our work has also demonstrated that this auto-reactive response reflects a localized immune response within the target tissue, the liver. However, it remains difficult to attribute a direct pathological role to autoantibodies and CD4 T cells in this disease. CD4 T cells are generally considered to be helper cells rather than cytotoxic cells capable of directly attacking hepatocytes. Nevertheless, it is possible that these CD4 T cells promote the response of CD8 T cells, which possess cytotoxic properties.

The objective of our study is to determine whether there is an autoantigen-specific CD8 T-cell response in autoimmune hepatitis associated with a CD4 T-cell response. To do this, we will assess the ability of CD8 T cells to react against the SepSecs, Cyp2D6, and actin autoantigens, based on the presence of detected autoantibodies. The test is based on a short in vitro activation of T cells using peptide pools. Antigenic reactivity will be assessed by the induction of expression of the 4-1BB and CD107a markers on the surface of CD8 T lymphocytes, quantified by flow cytometry, according to an established protocol.

<u>Option(s) linked to the project:</u>

☐ 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