

Internship Proposition
(one page max)
Master 2 GP Immunology & ImmunIntervention (I³)
2024-2025



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:

RENAND Amédée; CRCN

Email of the supervisor:

amedee.renand@univ-nantes.fr

Candidate (if internship filled):

Title of the internship:

Identification of lymphocyte transcriptional factors involved in the emergence of hepatic autoimmunity.

Summary of the internship proposal:

The liver is an organ with multiple metabolic and detoxification functions, necessary to the body. It is also the first point of passage for blood from the digestive tract, and receives many exogenous bacterial and dietary compounds. In order to maintain hepatic function, the immune system in the liver is biased towards tolerance. However, autoimmune diseases of the liver, including autoimmune hepatitis, demonstrate the limits of this local tolerance phenomenon.

We are trying to better understand the immune mechanisms involved in this disease, and the events that are responsible for the breakdown in local tolerance. To this end, we have carried out studies on lymphocyte populations present in the blood, which are associated with liver damage in patients, and characterized their transcriptional profile at the single cell level (single cell RNAseq). This has enabled us to identify transcripts potentially involved in the function of these lymphocytes and in hepatic auto-reactivity. We have developed a mouse model that allows the analysis of the emergence and modulation of CD4 T cell responses against a model antigen expressed by hepatocytes. This model is used to test our mechanistic hypotheses.

During the Master 2 internship, the student will participate in the validation, in the mouse model, of the involvement of some of the candidates identified in our studies in patients. The aim of this project is to identify factors involved in hepatic autoimmunity, which will be targeted in functional studies to propose new therapeutic approaches. Various techniques will be used by the student, including RTqPCR, Western blot, immunofluorescence, cellular culture and flow cytometry.

Option(s) linked to the project:

Clinical Research Profile (Recherche Clinique)

Data Analyst Profile (Recherche et Analyse de Données Biologiques)

Experimental Biology Profile (Recherche Expérimentale)