

Internship Proposition
(one page max)

Master 2 GP Immunology & ImmunIntervention (I³)
2026-2027



Lab: INCIT UMR 1302

Team: 1 - Modulation of immune and inflammatory responses

Name and position of the supervisor: Chloé Terciolo, post-doctoral researcher

Email of the supervisor: chloe.terciolo@univ-nantes.fr

Candidate (if internship filled):

Title of the internship: Establishment of complex autologous co-culture of human epithelial organoids with immune cells as a model for inflammatory bowel disease (IBD)

Summary of the internship proposal:

Inflammatory bowel disease (IBD) are multifactorial diseases, driven by a complex interplay between genetic and environmental factors, excessive immune activation and microbial dysbiosis, leading to severe lesions in the lining of the gastrointestinal tract, notably the intestinal epithelium. However, IBD pathophysiology is not well understood, hindering the development of more effective treatments. DP8 α Tregs (double positive CD4 CD8 α low ; identified by my host lab), which are induced by a commensal bacterium, Faecalibacterium prausnitzii (F. prau), represent a promising therapeutic candidate. They have shown that the presence of DP8 α Tregs was associated with a better prognosis in IBD patients supporting the idea that DP8 α Tregs may help control an exacerbated inflammatory process. However, interactions between epithelial and immune compartments are poorly understood and further investigations are needed to explore mechanisms of inflammation regulation.

The goal of the internship will be to decorticate the interactions between the epithelial and immune compartments by establishing a new model of complex co-culture of epithelial organoids with immune cells to a better understanding of complex intestinal interactions in IBD.

Established patient-derived intestinal organoids (PDIOs) in 3D and 2D, made of epithelial intestinal cells, will be extensively phenotypically characterized including morphology, growth (video-microscopy) and self-renewal process (immunofluorescence, qPCR and western blot). Epithelial barrier function will be assessed in a physiologically relevant context. Paracellular permeability assays will be combined with quantitative morphometric analyses of organoid. Once DP8 α Tregs will be phenotype by flow cytometry, the PDIOs will be enriched with autologous DP8 α Tregs, dynamic interactions occurring between PDIOs and immune cells in physiological and inflammatory conditions will be evaluated by time-lapse brightfield and fluorescent microscopy. Functional and molecular interactions will be evaluated in inflammatory conditions to determine the potential beneficial effects of Tregs during IBD.

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

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Option(s) linked to the project:

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