



Internship proposition  
**One page max**  
M2 I3/OHNU 2024-25



**Lab:** CRCI<sup>2</sup>NA Nantes - INSERM UMR 1307/CNRS UMR 6075

**Team:** Team 1 - ITMI “Immunomodulation of the Tumor Microenvironment and Immunotherapy of Thoracic Cancers”

**Name and position of the supervisor:** TREPS Lucas, CRCN CNRS

**Email of the supervisor:** lucas.treps@univ-nantes.fr

**Candidate:** The candidate must hold a strong background and interest in cell biology, immunology and cancer. Ideally, the candidate should be experienced in cell culture, and willing to work with mice model/samples. Analysis of scRNA-seq data could be foreseen during the internship. A strong asset will be the candidate’ ability to communicate in English.

**Title of the internship:** The vascular compartment in cystic fibrosis and tumor-associated comorbidities

**Summary of the internship proposal:** Caused by CFTR mutation, cystic fibrosis is the most common autosomal recessive genetic disease in Caucasians and affects a broad spectrum of organs. Novel therapeutic modalities offered by highly efficient CFTR modulators have dramatically increase the median age of survival that is now at 65.9 years in France. Unfortunately, new comorbidities are emerging including cardiovascular issues and increased prevalence of cancers, the onsets of which are not yet fully understood.

Recent evidence supports that CFTR has an important role in various models of cultured endothelial cells, where its impairment promotes endothelial activation, inflammation and dysfunction. Moreover, during tumor development several studies (in different cancer entities) point a role where CFTR acts as a tumor suppressor gene, whose expression is largely repressed and then associated with poorer patient survival. However, at the moment little is known about the role of CFTR within the tumor microenvironment, and how its deficiency could promote tumorigenesis in patients with cystic fibrosis.

This original project relies on the use of a novel mouse model and various 2D/3D in vitro systems in order to elucidate the role of CFTR during the physiological vascular development, in the tumor microenvironment and explain how a defect in CFTR expression can lead to the development of cancers in cystic fibrosis patients.

Option(s) linked to the project:

- Clinical Research Profile
- Data Analyst Profile
- Experimental Biology Profile