

**Internship Proposition**  
**(one page max)**

**Master 2 GP Immunology & ImmunIntervention (I<sup>3</sup>)**  
**2025-2026**



**Lab: INCIT INSERM 1302 CNRS 6001**

**Team: Modulation of Immune and Inflammatory Responses**

**Name and position of the supervisor: Bruno PITARD, DR1 CNRS**

**Email of the supervisor: [bruno.pitard@univ-nantes.fr](mailto:bruno.pitard@univ-nantes.fr)**

**Candidate (if internship filled):**

**Title of the internship: RNA-Directed Antibody *in vitro* Design**

**Summary of the internship proposal:**

A new project, **ReNA**issance led by Bruno Pitard, has been selected by an international jury as a high-risk health research program with the potential to generate strategic conceptual and technological breakthroughs in the coming decades. The goal of **ReNA**issance is to advance medical research by developing a breakthrough therapeutic approach for treating infectious diseases through *in vivo* mRNA expression encoding therapeutic antibodies.

The Pitard laboratory, is seeking an innovative and highly motivated Master 2 student to (1) design optimized mRNA molecules and establish cellular assays to demonstrate *in vitro* proof of concept for new RNA therapeutic leads and (2) characterize *in vitro* RNA expression and study disease-relevant biology to help prioritize candidates for *in vivo* studies in animal models.

**Key activities:**

- Participate to mRNA element engineering efforts to optimize novel mRNA structure designs for RNA therapeutics achieving unprecedented levels of expression and stability
- Execute all-based assays in human and rodent cell lines to characterize the efficacy and safety of novel RNA therapeutic leads.
- Develop cell based neutralizing antibody assays against various viral targets
- Participate to the design RNA formulation using adjunct regulatory elements to modulate antibody secretion
- Investigate mechanism of action of lead candidates and establish biologically relevant endpoints for mRNA antibody selection and infectious disease applications

**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)

Form to be sent by email to : [gpi3@univ-nantes.fr](mailto:gpi3@univ-nantes.fr)