

## Postdoctoral position available Immunogenetics of pediatric autoimmune diseases Lab at Imagine Institute-Paris-France

**Project:** RHU4 ATRACtion – Autoimmunity/inflammation Through RNAseq Analysis at the single Cell level for Therapeutic Innovation (<https://atraction.institutimagine.org/en>)

Primary immunodeficiencies (PID) gather more than 430 rare monogenic causes affecting the function or regulation of the immune response. In a register of more than 6,000 patients with PID, the reference center for immunodeficiencies at Necker hospital has shown that autoimmune or inflammatory pathologies occur in more than 25% of cases of PID (PID-AI / INF). In addition, a given monogenic cause can be associated with variable expressions ranging from the absence of symptoms (no penetrance) to a broad spectrum of severe manifestations. PID-AI/INF usually requires lifelong symptom treatment, including extensive immunosuppression or immunotherapy. In the long term, such treatments can have significant side effects or be ineffective and come at a high cost. The variable expression observed in PID-AI/INF therefore leads to diagnostic and therapeutic wandering. Our hypothesis is that the analysis of transcription pathways will optimize the stratification of PID-AI/INF patients by providing a signature integrating the modifications resulting from genetic causes but also modifying factors. In this project, our goal is to unravel the underlying autoimmunity/inflammation mechanisms associated with PID at the transcriptional level using "single cell" approaches. This transversal project will use these technologies, network inference and artificial intelligence to develop innovative diagnostic tools, and define personalized therapeutic approaches for patients with PID-AI/INF.

**Offer:** The Immunogenetics of pediatric autoimmune diseases Lab of Dr Frédéric Rieux-Laucat at Imagine Institute (<https://www.institutimagine.org/en/frederic-rieux-laucat-190>) is seeking a fulltime Postdoctoral Research Fellow to take on an exciting translational project aimed to validate and develop, on the basis of multi-Omics data, new diagnostic and therapeutic strategies for autoimmune diseases in the context of primary immune deficiencies. The position is offered for 2 years.

**Keywords:** Autoimmunity – Inflammation – Diagnosis -Therapeutics -Artificial intelligence – Personalized Medicine

**The Imagine Institute** is a recent research structure located within Necker Children's Hospital (Paris). Its 24 research labs are focused on understanding the molecular mechanisms of genetic diseases that affect the adaptive and innate immune systems, the nervous system, stem cell differentiation, embryo-foetal differentiation, kidney disease, metabolic impairments, etc. The Imagine Institute offers a unique environment in which clinical and basic sciences synergize to produce astonishing contributions in areas as diverse as immunology, molecular genetics, cell biology, and clinical and translational research.

**Candidate:** The candidate should be highly motivated, self-driven, independent and creative, with expertise in:

- Human immunology
- Molecular/cellular biology

Expertise in human genetics and bioinformatics is an advantage.

**Application:** Please send a concise cover letter with a statement of research interest and summary of previous research activity, detailed *curriculum vitae*, and two reference letters to Frédéric Rieux-Laucat:

[frederic.rieux-laucat@inserm.fr](mailto:frederic.rieux-laucat@inserm.fr)