

Funded Ph.D. Position
Leukemia and antitumor immunity
Institut Cochin – Paris



Title: Deciphering tumor-specific T cells in Acute Myeloid Leukemia
Contract: 3 years (**already funded**).
Place: Team Normal and pathological hematopoiesis, Cochin Institute – Paris

Project: Acute Myeloid Leukemias (AML) are a heterogeneous group of blood cancers. Recently, the presence of neoantigen tumor-specific T cells has been reported, opening a new area of research in AML. The project will explore whether these T cells response can be broadly identified in AML using advances methodologies, to determine which AML patients could be a good candidate for immunotherapies targeting T cells.

To this end, two main axes of research will be developed: 1- Identification and characterization of tumor-specific T cells using high throughput screening approaches for tumor epitopes (*i.e.* neoantigens, tumor-associated antigens). 2- Identification of tumor-specific T cells through their TCR repertoire using a multi-omics approach. These two strategies will be applied in blood and bone marrow of AML patients at diagnosis, and after treatment (remission and/or relapse). This project will allow us to better understand tumor-specific T cells response in AML patients (*e.g.* shared tumor epitopes and tumor specific TCR, phenotypic characterisation of tumor-specific T cells) and determined if innovative therapeutic approach could be developed in AML treatment (*e.g.* TCR transgenic T cells, neoantigens vaccination).

The PhD candidate will utilize cutting-edge technologies established in the lab (Flow- and mass-cytometry (CyTOF), cell sorting, single-cell RNA sequencing, *in vitro* cultures).

Requirements:

- Master degree in the area of Cell biology, Cancer biology or Immunology.
- High degree of motivation & enthusiasm in investigating anti-tumor immunity in leukemia.
- Previous experience with cellular & molecular immunological techniques (*i.e.* multicolor FACS, cell culture) will be considered advantageous.
- Previous experience with bioinformatic analyses (*e.g.* R Studio) (not mandatory)
- High motivation, enthusiasm, and commitment to science

Application: Applications should be submitted to Yannick Simoni (yannick.simoni@inserm.fr). **Required documents:** CV, Motivation letter, Referees.

Publications from the team:

- Li *et al*, Characterization of neoantigen-specific T cells in cancer resistant to immune checkpoint therapies. PNAS 2021
- Simoni *et al*, Bystander CD8+ T cells are abundant and phenotypically distinct in human tumour infiltrates. Nature 2018
- Simoni *et al*, Mass cytometry: a powerful tool for dissecting the immune landscape. Current opinion in Immunology 2018