

Post-doctoral position, 2 years

Keywords: Colon – Organoids – Extracellular Matrix – Cancer initiation - Mechanobiology

A **postdoctoral research fellow position is available for 2 years** in Audrey Ferrand research group focusing on the **interaction between the intestinal epithelium and its environment** (<https://www.irsd.fr/audrey-ferrand.html>) at the **Digestive Health Research Institute (IRSD)** in **Toulouse, France**.

Toulouse is a dynamic research area located in south of France that comprises many internationally recognized laboratories (fundamental cell biology, pharmacology, cancerology, immunology, metabolism, agronomy...) and gives access to a network of high-level skills research platforms in life sciences(imaging, cytometry, cell metabolism, lipidomic, proteomic, transcriptomic...) making possible almost all research projects.

The Digestive Health Research Institute, accredited by INSERM, INRA, ENVT and Toulouse University, is internationally recognized and offers a productive scientific environment centered on basic and clinical research to understand and treat diseases of the intestine and the liver. IRSD brings together a total of >80 researchers, MDs, professors, technicians, students and post-docs of different nationalities.

Our research group focuses on the impact of environmental conditions on the intestinal epithelium functions (regeneration, barrier function) in physiology and pathologies (inflammation, cancer). Our lab is a young dynamic team of scientists, MDs, graduate students and technicians and collaborates with physicists and bio-informaticians. This project, funded by the **System Biology call of the Plan Cancer**, focuses on Colorectal cancer (CRC), the 3rd cause of cancer-related death. It is admitted that CRC originates from the colorectal crypt. Clinical observations suggest that stroma and extracellular matrix (ECM) alterations, occurring during inflammation or previous cancer, could affect the intestinal stem cells and drives their transformation to cancer initiating cells (CIC)

We hypothesize that the tumor-favoring microenvironment setting-up, including ECM alterations, occurs early in CRC and favors a phenotypic shift of normal crypt stem cells (CSC) to CIC. These altered epithelial-stromal relationships may occur as initial and required steps of the CRC and may impact the disease evolution and response to treatments.

The post-doctoral fellow will be in charge of **studying the impact of the physical/mechanical properties of the ECM on the phenotype regulation of the intestinal crypt cells**. We have already established a bank of human organoids (healthy, Inflammatory bowell disease and CRC), we are currently setting-up culture conditions (2D and 3D) reconstituting the physio(pathological)features of the intestine ECM, and we set-up collaborations with clinicians, physicists and bio-informaticians to develop this project.

PROFILE: The suitable candidate is a young scientist with 2- to 4-year postdoctoral experience, a proven track record of research accomplishments including first author publications in international peer-reviewed journals and excellent experience in cell biology, mechano-biology, molecular biology. Background in oncology field and 3D culture will be appreciated. In addition, excellent communication/interpersonal skills are required.

Salary : 2544 euros /month (or plus depending on experience). Position starting on **July 1st** the latest.

Please email a cover letter, CV, and two contact information (email address) of support from former mentors or collaborators to **Audrey Ferrand** (audrey.ferrand@inserm.fr).