

## Postdoctoral researcher position in Microfluidic/3D tumor and microenvironment engineering

Université Paris-Saclay, France, 12 months

### Key words

Tumor cells; mechanobiology; microfabrication; three-dimensional cell culture; spheroids; cancer therapies

### Clinical context

The preclinical development of cancer therapies generally involves the evaluation of potential anticancer agents on tumor cell cultures in vitro. The poor performance in terms of predicting therapeutic responses in humans from available in vivo or in vitro models has motivated the search for alternative in vitro models that are truly predictive of human cancer. A recent approach to in vitro cancer modeling is based on the development of organs on microfluidic chips associated with the culture of spheroids allowing to recapitulate the multicellular architecture, the tissue-tissue interfaces, and the physiologically relevant physical microenvironment of cancers in the human body. In this context, the TumFlu project funded by the LABEX LaSIPS proposes to manufacture and optimize a dedicated microfluidic device then to undertake the culture of tumor spheroids in the microfluidic system and finally to study the role of the tumor microenvironment (stiffness, oxygenation) on the proliferation and cell migration and response to treatments.

### The scientific objectives are:

- Design and fabrication of a microfluidic device
- Construction of a 3D tumor model
- Optimization and validation of cell culture in the microfluidic device
- Understand how environmental conditions (i.e., biochemical, and mechanical clues) will affect tumor progression and metastatic capacity.

### Required skill profile

We are looking for a motivated full-time post doc who will work on the construction of a biomimetic device able to reproduce in vitro the physio-pathological conditions of tumors in vivo by opportune combination of 3D cell culture conditions and microfluidic technology.

The candidate must hold a PhD in biology, microtechnology or tissue engineering. To carry out this interdisciplinary project the candidate should possess solid skills in the areas of cell biology, biological assays and/or tumor-microenvironment interactions. Validated experience in microengineering and microfluidics (e.g., photolithography and microfluidic fabrication processes, flow control in biochip, etc...) is highly desirable.

The candidate must be proficient in oral and written English. We are looking for candidates interested to work in a multidisciplinary research environment, who have excellent communication skills, are team-oriented, focused, self-motivated, trustworthy, critical, and open-minded.

### Location

The postdoctoral internship will take place mainly within the CNRS C2N laboratories (Centre for Nanosciences and Nanotechnologies) and the Institut Galien Paris-Saclay of Paris-Saclay University in close collaboration with the CNRS LMPS laboratory (Laboratory of Mechanics Paris-Saclay), CentraleSupélec, Paris-Saclay University within the framework of the LABEX LaSIPS TumFlu project. Paris-Saclay University is located about 25 km south of Paris on the plateau de Saclay.

### Contacts

For enquires about the position, please email Dr [Bertrand David](mailto:bertrand.david@centralesupelec.fr) ([bertrand.david@centralesupelec.fr](mailto:bertrand.david@centralesupelec.fr)), Dr [Anne-Marie Haghiri](mailto:anne-marie.haghiri@c2n.upsaclay.fr) ([anne-marie.haghiri@c2n.upsaclay.fr](mailto:anne-marie.haghiri@c2n.upsaclay.fr)) or Dr [Simona Mura](mailto:simona.mura@universite-paris-saclay.fr) ([simona.mura@universite-paris-saclay.fr](mailto:simona.mura@universite-paris-saclay.fr)). with the subject “*LabexLaSIPS\_postdoc*”. To apply, please send a detailed CV with names and contact information of 3 referees, a complete list of publications and a statement of research interest. The application documents must be sent as a single PDF file. Incomplete applications will not be considered for evaluation. Applications will be considered as received, for a start of contract between October and December 2022.