Engineer for developments of tumor-on-chip technology (M/F)

The hosting structure

**Institut Curie Research Center**
Institut Curie is a major player in the research and fight against cancer. It consists of a Hospital group and a Research Center of more than 1000 employees with a strong international representativeness. The objective of the Research Center is to develop basic research and to use the knowledge produced to improve the diagnosis, prognosis, and therapeutics of cancers as part of the continuum between basic research and innovation serving the patient.

**Context**

**Laboratory**
Laboratory UMR 168 - Director: Pascal Hersen
Equipe MMBM - Director: Stéphanie Descroix
[https://curie.fr/equipe/descroix](https://curie.fr/equipe/descroix)

This inter-disciplinary project, funded by Fondation ARC and coordinated by Maria Carla Parrini, will be developed as collaboration between Institut Curie (team of Fatima Mechta-Grigoriou), Institut Pierre-Gilles de Gennes for microfluidics (team of Stéphanie Descroix), Bichat hospital (team of Gérard Zalcman), and CNRS of Lille (team of Fabrice Soncin).

**Research project**

**Title:** Generation of a vascularized lung-cancer-on-chip

Tumor-on-chip (ToC) approaches reconstitute highly-controlled tumor microenvironments in microfluidic devices. They have been recognized as breakthrough 3D models for immune-oncology research. We recently succeeded in reconstituting ex-vivo the immunotherapy response of a lung cancer ecosystem to an immune checkpoint inhibitor (anti-PD-1). Moreover, we microfabricated a functional vessel-on-chip using primary lung endothelial cells. The project aims at generating personalized lung-cancer-on-chip platforms with clinically-relevant cell models, i.e. primary autologous cells isolated from fresh lung tumor samples. The unique controllability of ToC experimental approach will be exploited to investigate some of the immunotherapy resistance mechanisms, not linked to the molecular features of cancer cells. In particular, we will focus on the role of stromal components, cancer-associated fibroblasts and vascular endothelium, as well as of O2 concentration (hypoxia).

**Our recent relevant publications**

2. In vitro bone metastasis dwelling in a 3D bioengineered niche.
4. Fibroblast heterogeneity drives metastatic spread through distinct mechanisms in breast cancers.
5. Dissecting Effects of Anti-cancer Drugs and Cancer-Associated Fibroblasts by On-Chip Reconstitution of Immunocompetent Tumor Microenvironments.

Tumor ecosystem:
Cancer, endothelium, immune cells, fibroblasts

Candidate profile

Training and skills required
We are seeking for a candidate with a Master or Engineer or PhD degree, with experience in Microfluidics & Microfabrication (organ-on-chip) and/or Vascular Biology and/or Cell Biology.

Abilities
Autonomy, organizational capacity, team spirit, adaptability to multidisciplinarity, fluency in English.

All our opportunities are open to people with disabilities.

Contract information

Type of contract: fixed-term contract, Engineer position according to degree
Starting date: position available immediately
Duration: 18 months + 18 months
Working time: full time
Remuneration: according to the current grids
Benefits: collective catering, reimbursement of transportation fees up to 70%, supplementary health insurance
Location of the position: Paris
Reference: 2022-03-830ING

Contact

Please send your CV, letter of motivation and 2 references, to maria-carla.parrini@curie.fr
Publication date: 14/03/2022
Deadline for application: 30/05/2022

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