Post-doctoral position in Cancer Cell Biology at Institut Curie – Paris

**Project title:** Lung-cancer-on-chip: immunocompetent tumor ecosystems reconstitution as a novel experimental paradigm for pre-clinical immunotherapy studies

A major challenge in cancer research is the complexity of the tumor microenvironment which includes the host immune cells. Inspired by the emerging technology of organ-on-chip, we achieved 3D co-cultures in microfluidic devices (integrating four cell populations: cancer, immune, endothelial and fibroblast) to reconstitute and visualize ex vivo human tumor ecosystems. These tumors-on-chip are powerful novel platforms to study ex vivo immunocompetent tumor microenvironments, to characterize ecosystem-level drug responses, and to dissect the roles of stromal components. By combining advanced microfluidics and cell biology, we aim at developing a biomimetic lung-cancer-on-chip platform for pre-clinical studies, with a perfused vascular compartment, cancer-associated fibroblasts, and autologous immune cells. Immune Checkpoint Inhibitors (ICI) drugs led to a therapeutic revolution for lung cancer patients, however, only 20-30% of lung cancer patients are sensitive to ICI, and resistance mechanisms emerge. In the context of this lung-cancer-on-chip, we will evaluate the efficacy of anti-cancer ICI drugs and the influence of various controllable parameters, in order to better understand the mechanisms underlying immunotherapy efficacy and resistance.

We are seeking for a post-doc candidate with a background in Microfluidics, and eventually some experience in Cell Biology Immunology, and/or Cell Image analysis.

Net salary will be approximately 2300-2500 €/month, depending on experience, for 28 months. The candidate will develop this project at Institut Curie, which is located in the heart of Paris, and will qualify for all social/health benefits of Curie employees.

Candidates should send application (CV, motivation letter, 2-3 recommendation contacts) to maria-carla.parrini@curie.fr

**Recent relevant publications**
1) Dissecting effects of anti-cancer drugs and of cancer-associated fibroblasts by on-chip reconstitution of immunocompetent tumor microenvironments
Nguyen M, …, Parrini MC
Submitted to Cell Reports, available on Cell Sneak Peek https://ssrn.com/abstract=3188441
2) Fibroblast Heterogeneity and Immunosuppressive Environment in Human Breast Cancer.
Costa A, …, Mechta-Grigoriou F.
3) Transient microfluidic compartmentalization using actionable microfilaments for biochemical assays, cell culture and organs-on-chip.
Yamada A, …, Descroix S.