Call for Post Doctoral applicant:

Development of bioprinting technologies for 3D cell culture microenvironments

Context and Objectives

Novel strategies based on bio-printing technologies appear as a new paradigm for the engineering of 3D cell culture microenvironments. Proposed approaches allow either the fabrication of artificial scaffolds acting as a mechanical support for soft tissues or either the direct printing of cells seeded within an extracellular matrix. Nevertheless, the integration of specific cells and biomaterials within a realistic spatial distribution of topographical and mechanical biomimetic landscape is still a major challenge. The ELiA team at LAAS CNRS has recently developed and patented a novel 3D bioprinting technology that couples the flexibility of microfluidics with the resolution of photo-polymerization to create 3D architectures starting from libraries of multiple synthetic matrices. Our ambition is to show that this multi-material printing approach will solve current issues related to the fabrication of heterogeneous cell microenvironments that recapitulates, in a reproducible way, some of the physical and fluidics aspects of living tissues.

The two main objectives of this Post Doc stay are:

1. Investigate the performances and validate the bioprinting platform for multi-material printing using synthetic hydrogel materials.
2. Demonstrate the fabrication of models of 3D microenvironments integrating controlled topology and heterogeneous composition and physical properties. Applications to bone marrow and adipose tissues will be addressed in the project.

Environment

The successful Post Doc candidate will be part of the European HoliFAB Project (H2020) that aims at coupling microfluidic concepts and additive manufacturing technologies for the development of 3D cell culture microenvironments. This interdisciplinary project will take place at the LAAS - CNRS research laboratory in Toulouse. LAAS-CNRS has mastered state of the art technologies in the field of 2D/3D micro and nano-manufacturing devoted to the development of micro and nano-devices for biophysical studies, biological analysis and medical diagnosis. This project will be carried out in collaboration with biology research teams (StromaLab, Toulouse and Institut Curie, Paris France) specialized in oncology and regenerative medicine as well as industrial partners involved in additive manufacturing technologies.

Application

We are seeking a highly motivated and independent researcher with a strong interest in interdisciplinary projects at the interface between physics and biology. Preferred experience includes but is not restricted to microfabrication, microfluidics, cell culture and biomaterial development. The Post Doc position is available starting from January 2019, with funding guaranteed for 24 months.

Contact :

Please send a single PDF file, which includes a cover letter, CV and contact information of two references. Link to the offer: http://bit.ly/2KRd08e

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