

# Ingénieur/Post-doctorant (H/F) CDD

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## Laboratoire d'accueil :

Laboratoire des Colloïdes et Matériaux divisés (UMR8231) Partenaire académique : Groupe de recherche Cell Migration and invasion, Institut Curie

## Sujet du postdoc :

The Laboratoire des Colloïdes et Matériaux Divisés (UMR 8231 - CBI / UPMC, ESPCI) is a laboratory where research is performed through a variety of multidisciplinary activities. From its roots in fundamental research in the physics and chemistry of colloids, today the LCMD extends its innovations and inventions to the domain of biology. The laboratory is interested in answering fundamental scientific questions in material science, physics of colloids/interfaces and physics-chemistry for microbiology; these answers are then leveraged to create novel approaches and new materials. The laboratory expertise ranges from cutting-edge microfluidic approaches to study emulsion science to the development of complex millifluidic platforms. More recent research activities of the laboratory encompass liquid core hydrogel encapsulation for chemical and biological applications.

## Thématique de recherche :

The research project aims at the development of a semi-automated microfluidic platform to perform anticancer drug screenings via parallelized 3D-microfluidic tumor environments (ECM). The tumor environment contains multicellular cancer spheroids, which will be fabricated using a novel encapsulation technology. The platform will allow the establishment of drug gradients within the tumor environment and along the embedded tumor spheroids. The objective of the project is the variation of the tumor environment organization and rigidity via collagen cross-linking. The effects of the structural features of the ECM on drug delivery during tumor spheroid growth and migration will be investigated. The platform will be employed to perform an extensive experimental investigation, aimed at assessing the role of the tumor environment stiffness on the delivery of anti-cancer drugs

## Compétences requises :

The candidates should hold a strong expertise in applied microfluidics (Master degree). Good skills in microfluidic design, device fabrication and image analysis (Image J; Matlab and similar software) are required. Good knowledge in material science, surface treatment and experience in cell biology are a plus. The candidate should have a strong interest in biology, innovative concepts and working interdisciplinary. The candidate should be fluent in English.

## Durée :

CDD 1 AN

## Description du sujet :

- Design & Fabrication of 3D microfluidic array system
- System characterization towards : Establishment of long-term gradients,
- Determination of concentration profiles
- Investigation Tumor growth
- Tumor spheroid design/encapsulation technology



- Establishment of a semi automatized screening platform
- Quantitative drug screening in dependence of ECM stiffness

## Contact

Applications, including CV and cover letter, should be sent to Prof. Jérôme Bibette ([jerome.bibette@espci.fr](mailto:jerome.bibette@espci.fr)) and Dr. Anette Funfak ([anette.funfak@espci.fr](mailto:anette.funfak@espci.fr))

## Accès

Métro ligne 7 (Place Monge/Censier Daubenton) RER B (Luxembourg) Bus 21, 27 & 47 3 stations Vélib proches

Poste pourvu