



## **Microfluidics Engineering Ph.D. Project in Stem Cell Expansion and Differentiation**

PhD SCHOLARSHIP FUNDED BY THE BBSRC

Title: Development of Novel Microfluidic Networks for Optimisation of the Nutritional Environment for Embryonic Stem Cell Differentiation

Supervisors: Dr Nicolas Szita and Dr Farlan Veraitch (Department of Biochemical Engineering)

We currently have an opening for a 4-year Ph.D. position in the area of microfluidic system integration for applications in stem cells and regenerative medicine. We are looking for highly motivated engineers or scientists with a flair for laboratory hands-on work in a multi-disciplinary environment, eager to leave their mark on this emerging field.

In this project, we want to demonstrate that the optimal nutritional environment for embryonic stem cell (ESC) differentiation can be elucidated using microfluidics, by developing microfluidic devices capable of arraying multiple metabolite concentrations on a single chip. To this end, we will fabricate gradient generating microfluidic networks and monitor murine ESC markers using fluorescence micrographs. We intend to matrix nutritional media components for ESC differentiation by exposing seeded cell monolayers to superposed gradients of two metabolic factors and use factorial design approach for assays.

The Biochemical Engineering Department at UCL ([www.ucl.ac.uk/biochemeng](http://www.ucl.ac.uk/biochemeng)) offers in-house facilities for polymeric microfluidic device fabrication and characterisation, state-of-the-art embryonic stem cell bioprocessing facilities, and collaborates with the London Centre for Nanotechnology. Currently, three Ph.D. students (including one in the area of regenerative medicine) and one post-doctoral research associate are working in microfluidics / Lab on a Chip.

Commencement date: 22 September 2008

Stipend includes: 4 years tax-free living allowance at approximately £14,900 per year, plus home/EU tuition fees paid in full. Under the terms of the award scheme, funding is available only to UK and EU candidates who meet the residency conditions (typically, a first degree from a UK institution).

Candidates should have a first or upper second class degree relevant for microfluidics engineering research, for example in mechanical, electrical or bio/chemical engineering or in physical sciences.

Suitably qualified candidates should send their full CV outlining their interest and motivation for the project to Dr Nicolas Szita ([n.szita@ucl.ac.uk](mailto:n.szita@ucl.ac.uk)).

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