**Contact:** Cesare Cejas – cesare@microfluidx.co.uk

**Job Title:** Microfluidic Engineer

**Duration:** Full time

**Main Location:** Health Research Building, College Lane Campus, University of Hertfordshire

**Ad hoc locations:** Rutherford Appleton Laboratory, Harwell Didcot, Oxfordshire
King's College London, Guy's Hospital, Great Maze Pond, London

**Reports To**
Head of Microfluidics

**About MicrofluidX**
MicrofluidX is an award-winning startup developing a break-through bioprocessing platform for the CGT market, based on microfluidic technology. Its platform allows ultra-low costs and scale-up of CGT from discovery to commercial stages, making these very potent treatments affordable for a wider number of patients, and reducing development times by several years. MicrofluidX is currently developing a system that will allow biologists to test dozens of cell culture conditions in parallel in an automated way replacing the Petri dish, the flask, the bag, the bioreactor, and the centrifuge all at once!

**Project overview**
Cell and gene therapies (CGTs) are fast-growing areas of medical development. With over 700 clinical trials in progress, some treatments (e.g. Kymriah, Yescarta) have already reached the market. This technology is at a critical juncture where advances are achieving clinical realisation, yet manufacturing remains a key challenge, hindering clinical development and patient accessibility. Three critical manufacturing hurdles remain: prohibitive costs of goods, low process stability and control, and lengthy scale-up from discovery to commercial stages.

**Position overview**
Your role is to contribute to the design of a microfluidics-based bioprocessing platform through design and development of microfluidic chips. You will be performing microfabrication techniques (e.g. soft lithography, CNC micro-milling, hot embossing) to develop microfluidic chips and carrying out experimental and computational hydrodynamic tests. You will gather in/post-process physical data with a multidisciplinary team to suggest design changes and process improvement.

**Responsibilities and Duties**
- Design microfluidic chips using CAD software and problem-solve with the team on system design, testing and validation

- Perform microfabrication on COC-based (Cyclic olefin copolymer) microfluidic chips using CNC (Computer Numerical Controlled) micro-milling, stamping and thermal/chemical bonding and occasionally soft lithography using PDMS-based chips for flow parameter optimisation

- Perform hydrodynamic flow experiments on fabricated microfluidic chips to understand fluid behaviour necessary. This is performed in conjunction with optical microscope imaging

- Design and carry out computational/numerical modelling of fluid behaviour inside the microfluidic chips (e.g. Comsol)

- Analyse and present data to internal team, as well as external audiences such as scientific conferences and publications

- Actively participate in supplier selection of components

**Technical Qualifications**

Legends:
**E** – Essential
**P**- Preferred

- (**E)** At least a BSc in Engineering (Masters/PhD is a plus) in Fluid Mechanics/Hydrodynamics (or related fields) with specialised experience in **Microfluidics** (fluid dynamics in a small scale)

- (**E**) Experience with CNC micro-milling with cyclic olefin copolymers (COC) and PMMA (acrylics)

- (**E**) Capable of using CAD softwares for designing devices

- (**E**) Must have experience with computer simulations and knows how to use Comsol software

- (**E**) Experience in performing laboratory experiments

- (**P**) Experience in soft lithography and handling of polydimethylsiloxane (PDMS)

- (**P**) Experience with 3D printing is a plus

**Salary and perks**
Competitive salary based on experience