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

Job Title: Microfluidic Engineer

Duration: Full time

Location: Hertfordshire, UK

Reports To
Head of Microfluidics (CTO)

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, by performing microfabrication (e.g. soft lithography, CNC micro-milling, stamping, bonding) 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

- 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 streamline behavior necessary to optimise cell culture operations (e.g. perfusion). This is performed in conjunction with optical microscope imaging

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

- Analyse and present data to MicrofluidX's CEO and CTO, as well as external audiences such as scientific conferences and publications

- Problem-solve with the team on system design, testing and validation

- Participate in supplier selection, and adjacent system design

Qualifications

- At least a BSc in Engineering (Masters/PhD is a plus) in Fluid Mechanics/Hydrodynamics/Microfluidics (or related fields) with extensive experience in microfabrication techniques, specifically CNC micro-milling, stamping, bonding, lithography

- Capable of using CAD softwares for designing devices; experience with 3D printing is a plus

- Experience in Comsol simulations is a plus

- Experience in applying microfluidics for cell culture is a plus

Salary and perks

Competitive salary based on experience