

## Job Description & Key Responsibilities

We are inviting applications for a **Postdoctoral Fellow** position to join our dynamic and interdisciplinary team focused on developing a passive microfluidic plasma separator cartridge for finger-prick blood. The successful candidate will work at the interface of micro/nanofabrication, point-of-care (POC) development, and biomedical diagnostics.

This role offers a unique opportunity to contribute to the design and optimization of integrated microfluidic platforms for specific disease applications, including cardiovascular disease.

### Key Responsibilities:

- Design, prototype, and optimize passive microfluidic cartridges integrating plasma-separation membranes for efficient plasma delivery to electrochemical sensors.
- Characterize plasma separation performance including separation time, yield, cell carryover, and robustness across physiological and environmental conditions.
- Develop reproducible cartridge fabrication workflows, design documentation, and standardized testing protocols to support scalable prototyping and design transfer.
- Plan experiments, collect and analyze data using appropriate analytical tools and software.
- Work with interdisciplinary teams including clinicians to integrate microfluidics chips with complementary technologies, such as electrochemical biosensing platforms.
- Prepare research publications, technical reports, and conference presentations.
- Keep abreast of emerging developments in microfluidics, diagnostics, and biomedical engineering.

Successful candidate will be offered a full time (contract) as a member of the laboratory.

## Requirements

### Qualifications:

- Ph.D. in Biomedical Engineering, Mechanical Engineering, Materials Science, Chemical Engineering, or a related discipline.
- Demonstrated experience in experimental design and quantitative characterization of microfluidic systems, including flow behavior, plasma separation efficiency, and assay compatibility.
- Hands-on expertise in the design, prototyping, and validation of microfluidic diagnostic devices, including membrane integration, passive flow control, and performance optimization.
- Strong analytical skills with experience in data analysis and visualization tools for device performance evaluation.
- Excellent communication skills and the ability to collaborate effectively within interdisciplinary teams spanning engineering, biosensing, and clinical research.

### Preferred Skills:

- Design and fabrication of passive microfluidic systems (capillary-driven flow, membranes, polymers).
- Experience with plasma separation technologies (PSM, filtration, dried plasma spots, lab-on-chip).
- Prototyping using laser cutting, soft lithography, 3D printing, or lamination methods.

- Fluid dynamics characterization and biomolecule adsorption control in microchannels.
- Understanding of manufacturability, cartridge assembly, and design-for-scaling principles.

To apply, please send your cover letter, CV and names of 3 references (name, institution, email) to Prof Lim Chwee Teck at [clim@nus.edu.sg](mailto:clim@nus.edu.sg). Only shortlisted candidates will be contacted.