

Job Description & Key Responsibilities

We are inviting applications for a **Postdoctoral Fellow** position to join our dynamic and interdisciplinary team focused on developing electrochemical sensing technologies for early and accurate disease detection. 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 sensing platforms for detecting clinically relevant biomarkers such as cardiac-related biomarkers.

Key Responsibilities:

- Conduct independent and collaborative research in electrochemical biosensing.
- Perform micro/nanofabrication and surface modification for developing high-sensitivity electrochemical sensors.
- Design and optimize sensor platforms for specific disease applications, including cardiovascular disease.
- Develop and optimize electrochemical sensor assays in plasma, focusing on matrix robustness (fouling, interference, stability) and multiplex compatibility.
- Plan experiments, collect and analyze data using appropriate analytical tools and software.
- Work with interdisciplinary teams including clinicians to integrate sensors with complementary technologies, such as microfluidics or wearable platforms.
- Prepare research publications, technical reports, and conference presentations.
- Keep abreast of emerging developments in electrochemical sensing, 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, Chemistry, Electrical Engineering, Materials Science, or a related discipline.
- Demonstrated hands-on experience with electrochemical biosensors, surface functionalization in complex biological matrices, microfluidics and analytical chemistry.
- Strong analytical skills and experience with signal processing or data analysis tools.
- Excellent communication skills and the ability to work in a multidisciplinary team.
- Experience developing aptamers (e.g., SELEX), or substantial experience integrating affinity reagents into electrochemical platforms.
- Experience with multiplex assay development and cross-reactivity management.

Preferred Skills:

- Experience in aptamer selection, modification, and structure-switching probe design.
- Hands-on electrochemical techniques (DPV, SWV, CV, EIS) for biosensor characterization.
- Surface functionalization of gold or carbon electrodes (thiol chemistry, SAMs, nanomaterials).
- Micro/nanofabrication techniques, such as photolithography, electrodeposition, or screen-printing.
- Bioassay development in complex matrices (plasma, serum, whole blood).

- Familiarity with signal optimization, noise reduction, and calibration strategies for POC sensing.
- Knowledge of device packaging and system integration is a plus.

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