Postdoc/Engineer in biosensing/biotechnology

2 years contract (2024-2025) - CEA Saclay (France)

Subject: Development of Lab-Around-Fiber biosensors for the immunocapture and optical detection of antimicrobial resistance biomarkers

Domains: Immuno & Bio-sensing / Biotechnology / Optical fibers / Microfluidics / Diagnostics

Context of the project:

Antibiotic resistance in bacteria (AMR) is a big threat to global healthcare and new detection and diagnostic tools are needed to prevent the spread of pathogens, while ensuring the earliest and best treatment to patients. The Immunoanalysis Studies and Research Laboratory (LERI) at CEA is focused on the development of monoclonal antibodies (mAbs) and immunoassays (ELISA, Lateral Flow Assays) and the clinical validation of tests prior to their commercialization (ex: CARBA5).
We are now working on the development of a microfluidic biosensor integrating an antibody coated optical fiber (OF) to detect AMR markers in biological samples, in close collaboration with our partners at CEA/LIST/DIN/SMCD. This Lab-Around-Fiber (LAF) technology offers many advantages over conventional immunoanalysis methods such as flexibility, portability and low cost.
The recruited candidate will be in charge of the design, development and validation of LAF biosensors for efficient sample analysis and AMR biomarker detection. Optical and spectral analyses will be carried out with our partners at CEA/LIST. The detection of other relevant targets will also be studied.

Job responsibilities: The selected candidate will:

- Design and fabricate microfluidic devices for OF integration, automation and multiplex analysis.
- Set up and optimize novel antibody grafting procedures on different substrates (silica/gold).
- Implement and evaluate the performances of miniaturized immunoassays for target quantification using model proteins and biological samples and compare with multiwell plate assays.
- Take an active role in the presentation and publication of research results.
- Be involved in the training of students and communicating with our academic partners.
- Be capable of working in a Level 2 biosafety laboratory for microbiology experimentation.

Candidate profile: We are looking for outstanding candidates with the following skills:

- A PhD or Engineering degree in microfluidics, biotechnology or optical biosensing
- Previous experience in immunoanalysis, surface chemistry or microbiology will be highly appreciated
- Real motivation and ability to work in collaboration across disciplines and autonomously
- Fluent English, both spoken and written

Starting date: January 2024 (Position funded for up to 2 years)

Location: CEA-Saclay, 91191 Gif sur Yvette – France, within the Paris-Saclay University. (20 km from Paris via public transportation, private bus shuttle service - Paris and Ile de France Region)

How to apply: Applicants should send their CV+ cover letter + recommendation letters to Karla PEREZ-TORALLA (karla.pereztoralla@cea.fr) & Sandrine LEBLOIS (sandrine.leblois@cea.fr).