



GENOPOLE

LABORATOIRE ANALYSE ET MODÉLISATION POUR LA BIOLOGIE & L'ENVIRONNEMENT

<i>Post-doctoral position</i>	
Project title	Biosensor platform based on nanopore technology to detect peptide and protein biomarkers at the single molecule level
Typology	24 months, Post doctoral position in France
Activity area	Biotechnology
<i>LABORATORY</i>	
Laboratory name	LABORATOIRE ANALYSE ET MODÉLISATION POUR LA BIOLOGIE & L'ENVIRONNEMENT 
Host institution	Evry (Evry University/Paris-Saclay University)
Short description of the laboratory	The laboratory works on the structure/reactivity of biomolecules, the interaction of complex molecular assemblies, the reactivity at the interface for the environment and the design of polymer materials. The laboratory challenges are to design, manufacture and characterize new biomimetic nanopores, nanotubes, membranes and supramolecular organization in order to understand the dynamics in confined medium from ions to biomolecules transport. The laboratory develops applications such as ultra-fast-protein sequencing, single virus particle detection and drug delivery using a single molecule level electrical detection method. The LAMBE is also involved in understanding tumor cell mechanical properties.

SCIENTIFIC PROJECT/ MISSIONS	
Detailed description	<p>Context and objectives</p> <p>Biomarker detection in low quantities for disease early diagnosis like cancer remains a challenge. Analytical methods used in medical analysis require high quantities of biomarkers to be specifically detected in biofluids or cells. Biomedical science ought to address connectivity barriers restricting personalized medicine. Personalized medicine is based on medical biology which purpose is to define the metabolic profile of patients in order to adapt their treatment and minimize secondary effects. These metabolic profiles consist in an ensemble of biomarkers which allow to early diagnose diseases like cancer, establish vital prognostics, but also classify patients as a function of their sensitivity to treatments and ability to metabolize drugs.</p> <p>The objective is to develop an experimental biosensor platform based on protein, solid-state and/or hybrid nanopore technology, to detect peptide and protein biomarkers at the single molecule level. The final goal of this project is to be able to detect biomarkers from biofluids and a single cell. We intend to:</p> <ul style="list-style-type: none"> - Identify and quantify few copies of proteins or peptides known as biomarkers. - Perform nano-enzymology by determining the enzymatic activity from single copies of enzymes.
CANDIDATE PROFILE	
Essential skills	<ul style="list-style-type: none"> - Background in single molecule technics. - Have a strong desire to work in academia. - Demonstrate a high-level of skill in teamworking, communication, and academic writing. - Previous research experiences in any of the following subjects: single molecule approach, electrophysiology, nanotechnology, bioengineering, molecular biology. - Previous experience with nanopores or biomarker detection is preferred
Languages Required level	English French (not mandatory)
CONDITIONS D'EMPLOI	
Type of contract	Short term contract 2 years
Starting date	As soon as possible
Remuneration	130 000 € gross salary charged for 24 months (average 3000 € net/month)
CONTACT	
Professor Juan Pelta ; juan.pelta@univ-evry.fr Co-funder of DreamPore Start-up, nanopore team leader	