

POSTDOCTORAL RESEARCHER POSITION AT i-CLeHS/SEISAD/CNRS 8060

**Job title: Posdoctoral Researcher in Analytical Chemistry, Microfluidic Systems and Biosensors**

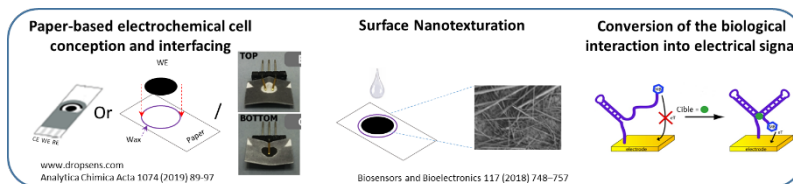
The **Institute of Chemistry for Life and Health Sciences (i-CLeHS)**, created in January 2019, is a research institut located on the Curie Campus in the building of the Prestigious French Engineering School in Chemistry **Chimie ParisTech** and supported by the French National Center for Scientific Research (CNRS) and PSL Research University. i-CLeHS draws together scientists who are working to **develop innovative research and concepts at the interface of chemistry and biology** that are valorized into advanced diagnostic and therapeutic products.

The **Synthesis, Electrochemistry, Imaging and Analytical Systems for Diagnosis (SEISAD) Team** is internationally recognized for its expertise in the design and **development of innovative tools for the early detection of pathological signals** using chemical and analytical methodologies. Its proprietary technologies go from micro reactions to electrochemical sensors and micro-Total Analysis Systems or even nanoprobe for optical and magnetic resonance imaging.

Project

The development of new reliable, quantitative and affordable **early diagnostic strategies for the assessment and management of health risks** related to the presence of emerging pathogens in water and biological fluids appears essential in a pandemic context. Current conventional techniques for virus diagnostics rely on either (1) the direct detection of the virus/antibodies produced against the virus or (2) the detection of the viral genome, which is inappropriate for **point-of-care testing (POCT)** for being tedious, time consuming and requiring expensive equipment as well as trained operators. Thus, the direct detection of viral surface antigens (capsid proteins) appears as an attractive but challenging alternative for an **amplification-free diagnostic of viral infections**. Expected target protein concentrations in biological fluids (including saliva) are of the order of ten femtomolar ( $10^{-14}$  M), which is far below the limits of detection of most commercial colorimetric diagnostic tests in paper strip format.

The post-Doc will work on the development and implementation of a **new disposable and reliable paper-based electrochemical sensor** for the direct detection of viral capsid proteins. **Electrode surface nanotexturation strategies** with original peptide nanostructures will be the heart of this research project to promote electron transfer and immobilization of aptamers as bioreceptors. The selected candidate will thus **combine the recent advancements in  $\mu$ PAD fabrication, surface engineering and molecular electroanalysis**.



The scientist will have an excellent opportunity to work within the perimeter of the IPGG (Pierre Gilles de Genes Institut for Microfluidics).

**The position is available immediately for initial term of 1 year and will be located in Paris.**



### Responsibilities

- Designing, developing, and implementing of a novel paper-based biosensor for the detection of viral protein capsids (design, microfabrication, testing and validation).
- Performing experiments in clinical settings (saliva samples).
- Writing of protocols and support documentation, data analysis, interpretation and identification of technology limitations and troubleshooting.
- Results' presentation and publication.
- Supporting lab's organization.

### Qualifications:

- A PhD in Analytical Chemistry, Microfluidic analytical devices and Biosensors.
- Experience in microfabrication, nanomaterials, surface characterization methods, electrochemical measurements and image processing would be highly appreciated.
- Experience in management of R&D projects
- Proactivity, interest in technology development, ability to work in a multidisciplinary research and good interpersonal skills are essential.

**Compulsory:** Full English language proficiency.

**Salary:** According to experience

**Application:** To apply, please send a CV including at least two references and a cover letter to: [fanny.dorlye@chimieparistech.psl.eu](mailto:fanny.dorlye@chimieparistech.psl.eu)

