

A one-year post-doc position is opened in the Laboratoire Interdisciplinaire Carnot de Bourgogne (ICB) which is a joint research unit of Université de Bourgogne (UB) and CNRS. Located in Dijon, a city of arts and history and capital of the Burgundy Franche-Comté region, ICB is a multidisciplinary laboratory developing new optical functionalities and new materials for industry, medicine and telecommunications.

Project:

We want to strengthen the team for the development and use of AFM techniques (HS-AFM, IR-AFM, SERS-AFM) for the dynamic and chemical analysis of biological samples. First, the project aims to analyze the assembly and the remodeling of nucleoprotein complexes involved in two DNA repair pathways, the homologous recombination (HR) and the non-homologous end joining (NHEJ). Defects in these repair mechanisms are often dramatic for the cell, and can be the cause of carcinogenesis processes. Regulation of the NHEJ and RH is crucial in order to prevent rearrangements and modifications, to allow the cell cycle to continue, and thus to ensure the integrity of the genome. Understanding at the molecular level these mechanisms is therefore essential, and constitutes a scientific challenge because it also requires the development of new analytical tools. This project indeed aims to develop a HS-AFM platform for the dynamic analysis of DNA-protein complexes. The second part of the project concerns instrumental and methodological developments of IR-AFM for the study of old parchments: determination of the nature and quality of the parchments (heritage conservation), identification of the animal species used for the production of the documents, appreciation of the various treatments undergone by these skins, restitution of the genetic / biological data of animal osteorestes and comparison with the information delivered by the analysis of the parchments.

The person recruited will be involved in defining the objectives and steering the project.

Competences :

The candidate must have an initial background in AFM, and a basic understanding of interdisciplinarity.

Desired skills:

- Experience in AFM and/or scanning probe techniques applied to life science;
- Taste for instrumental work;
- Molecular biology;
- Knowledge of DNA-protein interaction;
- Knowledge of Matlab and ImageJ (or equivalent).

Expected skills:

- Highly-motivated candidate for experimental work;
- Autonomy in work and organizational skills;
- Ability to work in a team;
- Ability to integrate into an interdisciplinary team.

Candidacy submission: Send by email: CV, cover letter, the name of two referees to:
olivier.pietrement@u-bourgogne.fr; eric.lesniewska@u-bourgogne.fr.

Duration : 12 months (with a possibility of extension)

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