

WANT TO WORK AT THE INTERFACE OF MATERIALS SCIENCE, BIOELECTRONICS, STEM CELL BIOLOGY AND TISSUE ENGINEERING?

CHECK THIS PROJECT AND REACH OUT FOR A CHAT.

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Looking for candidates to apply for a PhD position to join my newly established lab.

Project title: Deciphering the bioelectric code of cell differentiation

Short description: Several teams have highlighted how inflammation plays a key regulatory role in the resolution of a trauma, and how an altered inflammatory response can lead to delays or increased rates of complications. This is particularly the case for patients with metabolic diseases (e.g., diabetes mellitus), chronic inflammation due to aging and cancer, for whom bone healing is impaired. Endogenous electrical signals play an instructive role in many cellular behaviors. Researchers are starting to demonstrate that by adopting electroactive materials and applying external electrical stimuli it is possible to modulate cell fate and behavior leading to potential innovative therapeutic approaches.

This project will help understand the bioelectric code that regulates the behavior and commitment of the different cells implicated in the resolution of a bone defect (e.g., stem cell differentiating into bone-forming cells and monocyte commitment towards pro- or anti-inflammatory macrophages) adopting a multidisciplinary approach including **bioelectronics, in vitro 3D models, cell biology, high-resolution imaging**. The project will contribute to establishing the first *in vitro* models allowing the manipulation and control of bone progenitors cells and inflammatory cells via electrical/electromagnetic stimulation in a 3D environment.

Collaborations. Materials/surface characterization with CNRS, FR; Imaging techniques with Dr Darius Widera (University of Reading, UK).

Required skills: Applicants must hold a Master's degree or equivalent in Biology/Biomedical sciences/Biomedical Engineering. Knowledge of bone and tissue engineering is preferable. Preference will be given to candidates with experience in materials science, cell biology and/or molecular biology/biochemistry.

Specific skills that are useful for the project (but not essential pre-requisites) include basic materials science, cell biology, microscopy, immunocytochemistry, RT-qPCR, and statistical and data processing. Expertise in electrical engineering/biomedical engineering will be a plus.

Candidates must be **curious and intellectually ambitious**. The successful candidate will be expected to work independently, while also collaborating with several lab members and external partners, and to contribute effectively to team efforts.

She/he will need to communicate well in English (orally and in writing).

Basic knowledge of French (or willingness to learn) is a plus.

Important dates:

12/05: selection of candidates to be presented at the oral exam.

22-26/05: Oral exam,

31/05: Outcome of the selection process.