Post-doctoral position

Research team
UR 20218 “Neuropathies and Therapeutic Innovations”
Faculties of Medicine and Pharmacy, 2 rue du Dr. Marcland, 87025 Limoges cedex, France
https://www.unilim.fr/ur20218-neurit/

Duration/Starting date
15 months/October 2022

Funding
French National Research Agency (ANR)
Gross annual salary: 53000€

Our research
The research position focus is located at the intersection of microfluidics, advanced bioengineering and disease modelling. The position has an emphasis on utilizing microfluidic principles to develop two-dimensional (2D) and three-dimensional (3D) skin models and making these available for fundamental and applied studies. The main objectives of this project are to investigate the involvement of neurovascular interplay in the pathophysiology of rosacea, a chronic skin disease. 2D and 3D in vitro models will be developed to dissect the direct effect of nerve endings on the phenotype and expression patterns of endothelial cells and fibroblasts upon induction of neuropeptide release from neurons. For the 3D model, a dedicated chamber will be designed to: 1) assess the impact of rosacea on the innervation process of a reconstructed vascularized skin equivalent, 2) analyze the impact of nerves on the vascular network built in the reconstructed skin in rosacea, 3) study the potential of active components applied topically to the skin to prevent or decrease the deleterious effects induced by nerves on skin vasculature in the context of rosacea.

As such, the project is highly cross-disciplinary in nature, involving four dynamic research groups (at the University of Limoges, the University of Bordeaux, the University of Laval in Québec) and SILAB, a world leading company in the field of engineering of natural active products for skin healing, all under the common leadership of Prof. Alexis Desmoulière who is an internationally recognized expert in the study of skin regeneration.

Research related to this position will be performed at UR 20218 in Limoges, where the candidate will contribute to the current development of the model. The main tasks will include: the generation of human induced pluripotent stem cell-derived sensory neurons and Schwann cells, and their co-culture in microfluidic devices along with endothelial cells and fibroblasts; the study of neurovascular interactions in the context of rosacea, and setting up the rosacea skin model in 3D culture chambers.

Your profile
We are looking for a highly motivated and enthusiastic scientist with the following experience and competencies:

- You have a PhD in cell and/or molecular biology, neurosciences, tissue engineering, nanotechnology, or related fields;
- You are highly experienced in cell culture and hiPS maintenance and differentiation, and disease modelling;
- You have already worked with microfluidic device design and fabrication using polymer materials;
- You have proficient communication skills and ability to work in teams;
- You have excellent English skills, both written and spoken.

Contact
Send CV (including a short summary of previous research work) and a cover letter to Alexis Desmoulière (alexis.desmouliere@unilim.fr)

Keywords
Inducible pluripotent stem cell, endothelial cell, neuron, Schwann cell, microfluidic device, disease modelling, bioengineering, cell signalling, biomaterials and skin model.