Researcher position (M/F) for 18 months: Design of a new-generation surgical adhesive

Work environment:

CNRS, Balard Chemistry Center, Max Mousseron Biomolecules Institute (UMR CNRS 5247),

1919 route de Mende, 34090 Montpellier

https://ibmm.umontpellier.fr/polymeres-pour-la-sante-et-biomateriaux/#toggle-id-1-closed

Our team specializes in the synthesis of polymers for soft tissue regeneration.

Mission :

This project aims to develop a new-generation surgical adhesive for the rapid and effective treatment of severe traumatic wounds, particularly in civil or military emergency situations. This new system aims to combine strong adhesion in wet environments, on-demand UV activation, controlled biodegradation, and wound healing stimulation properties.

The formulation is based on a hybrid macromolecular system combining natural molecules (anti-inflammatory and pro-scarring), both multifunctionalized to be activated on demand. These molecules will be chemically modified to modulate the hydrophilic/hydrophobic balance, allowing the formulation (paste, spray, or nanofibers) to be adapted to clinical needs, paving the way for new galenic forms.

Different formats (single-use tube, spray, or nanofibers) will be offered to enable rapid application tailored to the nature of the wound, thereby helping to reduce the consequences of open wounds outside the operating room.

We are looking for a highly motivated postdoctoral researcher to work on a new generation of surgical adhesive.

Activities :

- Chemical modification of natural (macro)molecules (click chemistry, grafting of photosensitive groups)
- Shaping: of pastes, sprays, and nanofibers (electrospinning)
- Characterization of physicochemical, mechanical, and degradation properties (photoreometer, adhesion force, swelling, degradation, etc.)
- Biological evaluation: adhesion, proliferation, and extracellular matrix synthesis capacity of human fibroblasts

Skills:

Successful candidates must be motivated, hard-working, capable of conducting rapid research, and able to work independently in a team-oriented environment. In addition, the

researcher must demonstrate innovation, organizational skills, and communication skills. The candidate must hold a PhD and have experience at the interface between chemistry and biology.

List of expected skills:

- Proficiency in chemical synthesis (organic and natural and synthetic polymers)
- Macromolecular and shaped object characterization
- Shaping: Electrospinning, for example
- Cell culture
- Motivation to solve scientific problems
- Ability to read and communicate in English.
- Excellent writing and summarizing skills.

Experience in biomedical adhesives would be a plus.

Send a resume, cover letter, and contact information for at least three references.

Contacts :

Dr Coline PINESE, Coline.pinese@umontpellier.fr

Dr Vincent Darcos, vincent.darcos@umontpellier.fr