

## POSTDOCTORAL POSITION

### Development of polymer coatings to culture then release macrophages on-demand

#### Position description

A postdoctoral position in “the development of polymer coatings to culture then release macrophage cells on demand” starting in March 2024 (negotiable) is open in the **Institute of Condensed Matter and Nanosciences** of the University of Louvain (UCLouvain, Belgium) in close collaboration with **Ncardia** (Mont-Saint-Guibert, Belgium).

Macrophages are a prominent cell type for cell therapies as they can enhance immune responses, and improve outcomes in a plethora of diseases, such as solid tumors, neurodegenerative and autoimmune diseases, fibrosis, congenital immunodeficiencies, and infections. In this context, Ncardia has developed a protocol to produce macrophages from the differentiation of induced pluripotent stem cells (iPSC). However, a robust and reproducible production process is now required to create cell therapy products based on macrophages. In this context, the Bio and Soft Matter division of the Institute of Condensed Matter and Nanosciences (UCLouvain) will provide its expertise in the development of **biofunctional polymer layers** to elaborate **stimuli-responsive coatings** allowing **to culture macrophages** at large scale in bioreactors **then release them on-demand**, in gentle conditions to preserve their integrity and consequently their therapeutical properties.

The postdoctoral project centers on **the fabrication of stimuli-responsive copolymer coatings** enabling **the culture of macrophage cells** then their release in mild conditions, under the application of an external stimulus.

The successful candidate will design and conduct research experiments to develop such coatings and to test them towards macrophage culture in close collaboration with Ncardia. The job requires the ability to assist the principal investigators in establishing priorities to ensure efficient work progression, ensure liaison with other collaborators to guarantee success of the project, write high-quality reports, present results in an attractive way, and contribute to the daily management of the lab.

#### Lab description

The research will be led in the Bio and Soft Matter (BSMA) division of the Institute of Condensed Matter and Nanosciences (IMCN) under the supervision of Prof. Karine Glinel and Prof. Alain M. Jonas. A large part of the activities developed in BSMA covers scientific topics as diverse as biointerfaces and biosensing, biofunctional surfaces and polymer biomaterials for applications in medicine. These lines of research are supported by a strong expertise in polymer synthesis, nano/microfabrication and processing (layer-by-layer deposition, surface grafting, 3D bioprinting, nanoimprint lithography, microcontact printing, micromolding, etc.) as well as in the characterization of surfaces, materials and devices. The IMCN/BSMA lab provides direct access to a large range of techniques such as TEM, SEM, fluorescence and confocal microscopies, XPS, XRR, FTIR, raman and UV spectroscopies, in-situ ellipsometry, profilometry, AFM, ToF-SIMS, contact angle goniometry, rheology, thermal analysis, 3D printing and 3D bioprinting and cell culture facilities.

*Website:* <https://uclouvain.be/en/research-institutes/imcn/bsma>

### Salary

This position is a full-time position funded for 1 year (renewable). The monthly salary *after tax deduction* is in the range of 2700 € (depending on the candidate's professional experience).

### Specific requirements

- Knowledge and prior experience in polymer chemistry and physical chemistry and bio-functional surfaces
- Competences in cell culture is a plus.
- Autonomous, team spirit, excellent interpersonal skills
- The candidate should be highly motivated, determinate and result oriented
- Strong organizational and project management skills
- Skills in supervising the work of others
- The ability to work effectively with people of technically diverse backgrounds
- Strong written and oral communication skills

### Candidate profile and application

The candidate must hold a PhD in polymer or soft matter science or biomedical engineering or a closely related field, with an affinity for interdisciplinary science at the interface between polymer and biology and has to demonstrate a record of personal achievements. In addition, he/she has to have a good command (writing and speaking) of English. The applicant should submit a curriculum vitae including at least two references, a statement of his/her research activities and interests and a list of his/her publications.

### Contacts

Prof. Karine Glinel : [karine.glinel@uclouvain.be](mailto:karine.glinel@uclouvain.be)

Prof. Alain Jonas : [alain.jonas@uclouvain.be](mailto:alain.jonas@uclouvain.be)