

Postdoctoral Researcher in Organic Chemistry M/W:

“Design of photo-immolable nanomaterials”

Period: 18 months

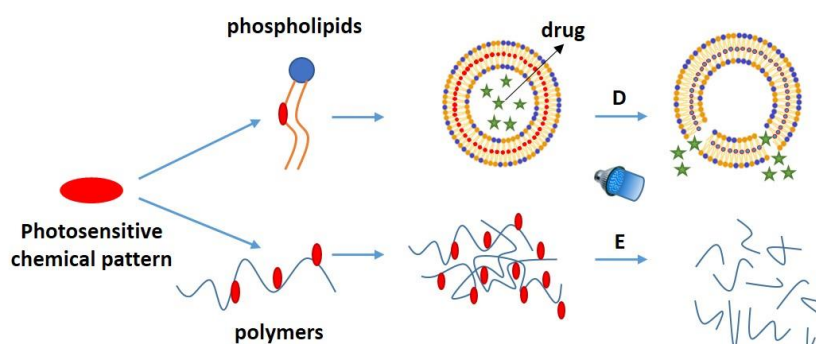
Salary: 2905 – 4081 gross, depending on previous experience (CNRS funding)

Starting date: ideally, between March - May

Studies: PhD level (with maximum 4 years of postdoctoral experience)

Missions:

The design of *smart self-degradable nanomaterials* could be the key to solve many ecological constraints our society is facing today, but also to find innovative therapeutic alternatives in clinics. The goal of the **Photo-CHOP** project is to design a specific photosensitive chemical pattern for potential applications (1) *in polymers*: for the design of new generations of light-degradable materials and (2) *in phospholipids*: for the design of stimuli-controlled drug-delivery systems (Figure).



During the current 1st phase of this project, the recruited postdoctoral fellow will synthesize model scaffolds that are suitable for such photodegradable reactions. This will involve the association of fragmentation reactions with specific photo-induced leaving groups. A methodological approach will be used in order to identify the optimum conditions necessary for such a reactivity pattern.

Activities:

- multi-step organic synthesis (Michel additions, heterocyclic chemistry, organometallic chemistry, orthogonal protective groups, fluorophores, etc.)
- analytical characterization of the synthesized chemicals: NMR, MS, IR, UV/Vis, Fluorescence spectroscopy, HPLC)
- bibliography
- regular reports and work-in-progress meetings in English
- article writing

Skills:

- organic chemistry: multistep chemistry under inert/moisture/light-protected conditions on a *milligram-to-gram* scale
- analytical chemistry: NMR, MS, IR, UV/Vis, FS, HPLC
- photochemistry: recommended, but not mandatory
- previous supervision of M2 students
- professional English necessary to work in an international environment
- participation to regular routines in an organic chemistry lab (stock management, chemical ordering, waste management, etc.)

Funding:

This project is financially supported by the Emergence Call 2024 of the National Institute of Chemistry (INC) – CNRS, France.

Host institution:

This project will be conducted in CBMN (Institute of Chemistry and Biology of Membranes and Nano-objects, Bordeaux). CBMN is a joint research unit of the **CNRS**, the **University of Bordeaux** (Science and Technology Department for health), the **Institut National Polytechnique Bordeaux** and the **Bordeaux Science Agro**. CBMN has around 200 persons (50% permanent and 50% non-permanent). CBMN is a multidisciplinary institute and operates at the interface between **Chemistry**, **Biology** and **Physics** by hosting 16 research groups organized in four scientific domains.

The research in CBMN is based on the expertise and the development of 7 technological platforms for the production and biophysical characterization of nanomaterials, lipids and proteins (NMR, X-ray, Electron Microscopy, Mass Spectrometry, Vibration Spectroscopies (IR-Raman-PWR), AFM, synthesis and production of recombinant proteins) of very high level associated with CBMN.

The **Photo-CHOP project** will be driven by the **MMB** group (Molecular Modeling and Bioengineering), supervisor Dr. Edouard Badarau (<http://www.cbm.u-bordeaux.fr/28-chimie-biophysique-modelisation-de-biomolecules-et-imagerie-numerique.html#trombinoscope>).

The **MMB** group is part of the **Chemical Biology and Supramolecular Chemistry** Department of CBMN, and has expertise in experimental chemistry, biological experiments and molecular simulations.

For further details on the host institution, the candidates are advised to navigate on the CBMN webpage, at: <http://www.cbm.u-bordeaux.fr>

Contact:

Interested candidates should contact the project coordinator:

Dr. Edouard BADARAU (edouard.badarau@u-bordeaux.fr)