



Ph.D. position 2021-2024  
Montpellier, France



Supramolecular  
BioOrganic Chemistry/Chemical Biology

## Selection and Adaptation of siRNA Vectors by Live Cells (SACSI)

**Overview of the project.** The SACSI project will study the self-assembly of unprecedented pH-responsive **amphiphilic dynamic covalent polymers** for generating **targeted nano-vectors of siRNA**. The ambition of this project is to **discover self-fabricated multi-component siRNA vectors** that adapt throughout the different steps of the delivery process in order to maximize efficacy. We have recently reported a 1<sup>st</sup> targeted dynamic covalent polymer which is formed in situ by siRNA templating (*Angew. Chem. Int. Ed.*, **2021**, *60*, *11*, 5783-5787). We now wish to exploit this proof-of-concept to **identify effective vectors that are selected by live cells**, essentially performing **dynamic combinatorial chemistry on cells**.

**Context and mission.** The PhD student will be in charge of **bioorganic synthesis of modified peptides and lipid conjugates** (SPPS, HPLC chromatography), including pH-responsive aromatic tweezers (*Nanoscale*, **2017**, *9*, 31-36), **in vitro biochemical analyses** (gel electrophoresis, DLS, Zéta potential) and **cell studies** (MTT and functional assays in 96-well plates format, using UV-Vis read-out).

**Host laboratory.** We belong to the Institut des Biomolécules Max Mousseron (IBMM) and will be located, from September 2021, in a brand-new building on the CNRS campus in Montpellier, France. The institute is part of the “Pole Chimie Balard” excellence cluster in chemistry which is supported by the I-SITE MUSE (Montpellier University of excellence).

**Ph.D. candidate.** You have recently graduated (M.Sc., Ecole d'Ingénieur, Master II, pharmacy) with excellent theoretical and practical knowledge in bioorganic chemistry (synthesis, purification, characterization). You have a strong interest for the interface with biology, and possibly for drug and gene delivery in particular, with a desire to learn and practice. We expect solid know-how on chemical synthesis to kick start the project – appropriate training will then be provided for the subsequent tasks at the chemistry-biology interface. You are a self-starter, working autonomously, willing to take initiatives and eager to work in a multidisciplinary project. You show a clear enthusiasm for research. You are a team player with very good communication skills. Knowledge of French would be useful but is not essential. Starting date: October 2021 (flexible), salary: ca. 1700 €/month.

**Interested?** Please send a CV/resume and a cover letter to Dr. Sébastien Ulrich ([sebastien.ulrich@enscm.fr](mailto:sebastien.ulrich@enscm.fr)). Interviews will be conducted asap.

