R&D internship - Nanoparticle Formulation Based on X-rays sensitive copolymers

Pessac (33), France

Master program internship

6 month – Full time

Desired start date: between January and March 2025

About Doxanano

Doxanano is a start-up created in 2023 by Isabel Marey-Semper and co-founded by Pr Sébastien Lecommandoux, director of the Laboratoire de Chimie des Polymères Organiques in Bordeaux, and Dr Leslie Dubrana.

Doxanano is committed to pushing the limits of conventional chemotherapy for patients with solid tumors. Our goal is to significantly increase the selective delivery of chemotherapeutic agents into the tumor whilst dramatically limiting adverse effects on healthy organs. We specialize in harnessing the unique properties of our DXN polymersomes drug delivery platform in combination with the precision of radiotherapy.

Internship description:

We are seeking a strongly motivated intern to join our research team. The internship will focus on the formulation of nanoparticles using amphiphilic copolymers sensitive to X-rays. This project is at the cutting edge of nanotechnology and drug delivery systems, aimed at improving the efficacy of anti-cancer treatments.

Key Responsibilities:

1. **Nanoparticle Formulation:**
   - Develop and optimize nanoparticle formulations based on amphiphilic copolymers that respond to X-ray irradiation.
   - Characterization of obtained nanoparticles: DLS, microscopy...
2. **Encapsulation of Anti-Cancer Drugs and Drug Release Studies**:
   - Work on the encapsulation of chemotherapeutic agents
   - Investigate the release of the encapsulated drugs under X-ray exposure or other stimuli.
   - Participate in the development of analytical methods such as HPCL, to determine the encapsulation rate and monitor release.
3. **In Vitro and In Vivo Evaluation:**
   - Sample preparation for in vitro and in vivo assays
   - Participate in the biological evaluation of the nanoparticles

Qualifications:

- Master's program in Chemistry, Chemical Engineering, Materials Science, or a related field.
- Strong knowledge of polymer chemistry and nanotechnology.
- Experience with nanoparticle formulation and drug delivery systems is an asset.
- Familiarity with in vitro and in vivo experimental techniques.
- Familiarity with chemical characterization methods is an advantage.
- Interpert data and report findings
- Strong analytical and problem-solving skills.
- Ability to work independently as well as in a team environment.
- Good communication skills in English (both written and spoken).

What We Offer:

- Hands-on experience in a dynamic research environment.
- Integration into an intradisciplinary project from research to clinical positioning
- Mentorship from experienced professionals in the field of polymer chemistry.
- The opportunity to contribute to innovative projects with real-world applications.
- A collaborative and supportive workplace culture.

Application Process:

Send your resume, a cover letter, and any relevant academic transcripts or references to Isabel Marey-Semper (i.mareysemper@doxanano.com) and Leslie Dubrana (l.dubrana@doxanano.com) with the subject line "Internship Application – Nanoparticles formulation"

The application deadline is **XXXXX**.

We look forward to your application and the possibility of you joining our team to contribute to the exciting advancements in polymer science!