

Post-doctoral position

Synthesis and formulation of magnetic nanovectors co-delivering siRNA and chemotherapeutics

Offer type: Post-doc position

Contract: Temporary position starting as soon as possible (18 months)

Salary range: Between 30 and 35 k€ annual gross, depending on the experience of the candidate

Employer: Université François Rabelais de Tours, EA 6295 NMNS (France)

Workplace: Faculté de Pharmacie, 31 avenue Monge, 37200 Tours (France)

Skill area: Chemistry, synthesis and functionalization of SPION and peptides, formulation of nanovectors

Presentation of the research laboratory (EA 6295 NMNS):

The research unit EA6295 "Nanomedicines and Nanoprobes" has a staff of 13 teachers-researchers from the School of pharmacy of Tours. The research activity of this unit focuses on the development and the study of biocompatible nanosystems for therapeutic (nanovectors for drug delivery) and/or diagnostic applications (imaging agents for MRI and/or optic imaging).

Missions:

The research unit EA6295 NMNS has recently developed magnetic nanovectors of siRNA with the aim to deliver them via intravenous injection for targeted gene therapy in breast cancer. These targeted, stealth magnetic siRNA nanovectors (TS-MSN) are composed of a core of functionalized superparamagnetic iron oxide nanoparticles (SPION) loaded with siRNA and cationic polymers (chitosan and poly-L-arginine).

The candidate will be integrated in a collaborative project entitled "Magnetic control for improved combination therapy in Triple Negative Breast Cancer (MAGCOT)", including three French teams and one Italian team, funded by the Institut National du Cancer (INCa, PLBIO22). The project consists in the development of co-loaded magnetic nanovectors with siRNA and chemotherapeutics (NV-si-CT) and to use synthetic peptides and an external magnetic field to improve the combination therapy in Triple Negative Breast Cancer. The peptides are synthesized and designed by the Italian team (University of Naples). The candidate will be the link between both teams and take part in the peptide synthesis as well as the synthesis and formulation of NV-si-CT. Protocols for the peptide synthesis, the synthesis of functionalized SPION and the separate loading of siRNA and chemotherapeutics on SPION already exist, but they have to be optimized and adapted to develop NV-si-CT.

Candidate profile:

The applicant should possess a solid experience (PhD) in chemistry. An expertise in the synthesis and functionalization of nanovectors and/or peptides is wanted. Expertise in formulation and characterization techniques will be a strong asset, as well as an expertise using nanocarriers for siRNA and/or chemotherapy delivery.

The candidate should possess good organizational skills and the qualities required for the realization of this transversal project between different teams. Good scientific English as well as a significant experience in publishing are essential.

Contact and candidature :

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Web-page of the laboratory NMNS : <http://nmns.univ-tours.fr/>