

PhD position at the Blood-brain barrier laboratory of Artois University

Marie Curie ITN, NANOSTEM – Artois University (Lens, France)



We are looking for a highly motivated student with a major in cell biology who has a strong interest in multi-disciplinary research. Your research project will be embedded in the Marie Curie ITN (Initial Training Network) project called Nanostem (“New nanomaterials for neural stem cells drug delivery”). The network is an international consortium involving academic participants, international research centers, a world leading pharmaceutical company as well as SMEs and an excellent hospital in Portugal, complemented by additional partner organisations able to provide the highest level of complementary training and broadening of the scientific project. The PhD position is available at the Blood-brain barrier laboratory (LBHE: Laboratoire de la barrière hémato-encéphalique) located in Artois University, in Lens, France.

The NANOSTEM project

NANOSTEM is a European Marie Curie Actions Project (FP7, ITN) that aims to train a new generation of early-stage researchers (ESRs).

This Network plans to explore this new knowledge by focusing on the development of advanced nanostructured materials designed to transport drugs across the blood-brain barrier (BBB), target Neural stem cells (NSCs), deliver their payload at cell cytoplasm or activate efficiently membrane receptors. In addition, this new avenue of research requires the development of *in vitro* human BBB models to screen formulations able to cross the barrier and the study, at molecular level, of the processes to enhance the intracellular transport. Finally, it requires a better knowledge of how to target NSCs, to control NSC biological activity (proliferation, mobilization and differentiation) and to demonstrate the effect of a potential inductive platform in an *in vivo* setting. To achieve these objectives, the Nanostem network is a combination of expertise ranging from organic and polymer chemistry to stem cell biology and clinical research which offers a superior training opportunity.

Aim

The recruited ESR will be embedded in the LBHE lab which has a recognized expertise in the modelling of the BBB, from animal (bovine, rat and mouse) and human cells, and evaluation/regulation of BBB properties under physiological and pathological conditions (acute or chronic drug exposure, Alzheimer disease, Stroke, Cancer).

The objective of the ESR at LBHE is to study the permeation of nanoparticles using a disease *in vitro* human BBB model. The work will be undertaken following three main steps. First, the experimental conditions to create the hypoxic environment will have to be defined. Secondly, the BBB properties, under hypoxic environment, will be characterized (cellular and molecular mechanisms responsible of BBB permeability modifications). Finally, the characterized disease *in vitro* BBB model will be used to study the permeation of the nanoparticles synthesized by partners. During the PhD, three secondments are planned in Lille (France), Portugal, and United Kingdom (short stays of one or two months).

Your profile

- Master degree in cell biology with experience in cell culture and molecular biology.
- Ability and motivation to work independently as well as collaboratively in an interdisciplinary team.
- Exceptional communicative and intercultural skills.
- Excellent English writing and presenting skills.
- Willingness for significant mobility throughout Europe and stakeholder interactions.

The main responsibilities of the candidate will be:

- To manage and carry out an independent, cell biology based, research project in close collaboration with partners in NANOSTEM.
- To actively participate in research and training activities within the NANOSTEM network.
- To contribute to writing articles for scientific journals.
- To disseminate research results in the scientific community (*via* international conferences) and in the non-scientific community (*via* outreach and public engagement).

Additional Marie Curie criteria that you should meet are:

- * You cannot have more than 4 years fulltime research experience (and do not yet have a PhD)
- * You cannot have lived for more than 12 months in France over the last 3 years.

Conditions

You apply for a 3 year PhD. You will mainly work in the LBHE lab in Lens, France. Three secondments are planned in the project in Lille (France), Portugal, and United Kingdom (short stays of one or two months).

How to Apply

Only complete applications will be considered.
Submission deadline is May 15th, 2018.

Please submit a complete application as a single PDF FILE (<10MB) named "surname_name_.pdf" and containing the required following documents:

- A meaningful letter of motivation allowing understanding the motivation for the application and the choice of the research project chosen if two projects are chosen the priority choice should be explained.

- A complete and detailed CV (including the countries of residence from September 2015 onwards)
- Copies of the university Master Certificates for the respective University degrees or alternatively a certified copy confirming the enrolment and the date of finalization of the master program of the candidate.
- Names and full contact details of two referees.

You can send these documents in pdf format to Caroline Mysiorek : caroline.mysiorek@univ-artois.fr mentioning **"NANOSTEM PhD" in the subject**. For inquiries you can send a message to this same address. The deadline for application is May 15th, 2018. Interviews by Skype will take place in June 2018. The starting date of this position is September 2018.

SUMMARY

ORGANISATION/COMPANY : Artois University

LABORATORY: LBHE (laboratoire de la barrière Hémato-encéphalique), Faculté Jean Perrin
Rue Jean Souvraz, 62307 SP18, LENS, France

RESEARCH FIELD : Cell Biology

RESEARCHER PROFILE : First Stage Researcher (R1)

APPLICATION DEADLINE : 15/05/2018

LOCATION : France › LENS (Three secondments are planned during the PhD)

SECONDMENTS: short stays in Lille (France), United Kingdom and Portugal.

TYPE OF CONTRACT : Temporary

JOB STATUS : Full-time

HOURS PER WEEK : 37,5

OFFER STARTING DATE : 01/09/2018

EU RESEARCH FRAMEWORK PROGRAMME : H2020 / Marie Skłodowska-Curie Actions

MARIE CURIE GRANT AGREEMENT NUMBER: 764958