

ASTROTECH - Marie Curie Innovative Training Network



Reference: ESR/ASTROTECH/INEB/2904/2021

Application Deadline: June 15, 2021 (23h59 GMT+01:00)

Job Description: PhD student Position aiming at the development of Astrocytic Tissue Engineered Models – Dissecting the role of the extracellular matrix mechanical properties towards the astrocytes' phenotype

The research project will focus on the development of a tissue engineered in vitro model, exploring bioprinting approaches, to study the impact the extracellular matrix mechanical properties on astrocyte behaviour in the context of homeostasis and disease. Furthermore, the successful candidate is expected to dissect the mechanotransduction mechanisms involved in astrocyte behaviour modulation.

The PhD student position is part of a European ITN network consisting of 15 PhD students enrolled at different universities and institutes across Europe called ASTROTECH (<http://www.astrotechproject.eu>). **ASTROTECH** is a multidisciplinary Training Network aiming at obtaining a more complete understanding of brain function and dysfunction, leveraging on the fast-growing recognition of the importance of glial signalling. ASTROTECH will implement “training-through-research” by the **development and application of innovative technologies & methodologies**, targeting the monitoring, the study, and the manipulation of the function of **glial cells called astrocytes** and their role and interaction with neurons at multiple scales: from intracellular and subcellular synaptic level, to cellular and neural circuits to behaviour, in both time and space.

The ASTROTECH network combines 11 beneficiaries and 14 partners belonging to 9 European and Non-EU countries. Academia, Public Research Centers and industrial labs, gather all complementary expertise needed to explore the several venues for glial interfacing offered by advanced materials, device architectures and operation, as well as for their validation to manipulate glial cell function. The 9 academic and public research Beneficiaries (**CNR, IIT, CSIC, UCAM, AMU, UNIBA, INEB, INEM, BCAM**) are internationally renowned for their research and training activities in the fields that they represent within **ASTROTECH**. The **contribution of the private sector** in the research & training program is pivotal for the training network, as it makes available the know-how for nanomaterial processing and device fabrication, covering advanced materials for electronic (**AVANZARE**) and light emitting devices (**OPTOCEUTICS**), as well as computational tools (**CODEMART**) and for expertise in translating research knowledge and technology into clinical practice (**MEDTRONIC**) and finally on professional

development, knowledge and leadership in research management and administration (NCURA).

At INEB, the selected ESR will be hosted within the nanoBiomaterials for Targeted Therapies (nBTT) Group of i3S|INEB (<https://www.i3s.up.pt/research-group?x=37>). Our aim is to develop "smart" biomaterials, designed at the nanoscale with controlled architectures and functionalities, to provide in situ and in a targeted manner the required signals to promote tissue repair and restoration of function. The nBTT is part of the i3S (www.i3s.up.pt), the Institute for Research and Innovation for Health. The i3S is dedicated to research and innovation in basic, applied and translational Health and Life sciences. It focuses on 3 research programs: Cancer; Host Interaction and Response; Neurobiology and Neurologic disorders. The transdisciplinarity of the programs allows to address questions at the molecular and cellular basis of living systems, mechanisms underlying disease and promotes the development of novel tools for screening, diagnostic and therapeutic strategies. The i3S core facilities provide access to advanced equipment for research in several fields (<https://www.i3s.up.pt/scientific-platforms>). Furthermore, i3S fosters continuous advanced trainings for scientists and implements annual educational and outreach activities to close the gap between science and society.

For the present project four (4) research exchanges are planned with the following consortium partners: Consiglio Nazionale delle Ricerche - Institute of Polymers, Composites and Biomaterials (CNR-IPCB), Italy; Università degli Studi di Bari (UNIBA), Italy; Consiglio Nazionale delle Ricerche - Institute for Organic Synthesis and Photoreactivity (CNR – ISOF), Italy; and Avanzare srl (AVA), Spain.

The INEB ESR will join the International Doctoral Program in Molecular and Cellular Biotechnology applied to Health Sciences (BiotechHealth) (<https://www.biotechhealth.pt>) within the Abel Salazar Institute of Biomedical Sciences of the University of Porto (www.icbas.up.pt). This PhD program, that will be designed according to the student needs, offers access to a variety of post-graduate courses within the University of Porto that range from technical courses to transferable skills training.

Requirements

We are looking for a candidate with a background in bioengineering (biomaterials/tissue engineering/bioprinting) and/or neurosciences (cellular/molecular biology), who is able to collaborate in a diverse team, consisting of fundamental and clinical scientists from many disciplines, including biomaterials, neurosciences, biophysics, molecular biology, bioimaging and medicine. Experience in primary neural cell cultures and certification in animal experimentation will be highly valorized.

In addition, candidates should have:

- Excellent proficiency of the English language (both oral and written),
- The ability to work in a multidisciplinary team. Excellent communication skills and cooperation skills are required,
- An inquisitive mind-set, accuracy and self-reliance are very important. You are required to be flexible and mobile, including willingness to travel to other partners for 1-2-month secondments,
- High interest in receiving training from supervisors from different institutes, disciplines and sectors,
- High motivation to contribute to the dissemination of results and outreach to both specialists and the public at large,
- Enthusiasm to visit Consortium Partners for secondments (internships). ESRs will benefit from a dedicated training program in the various fields of expertise of the consortium partners.

Additional Information

In accordance with the very strict EC Marie Skłodowska Curie Actions ITN the following eligibility criteria were defined:

- Candidates did not reside or carry out their main activity (e.g., work, studies) in the host country for more than 12 months during the 3 years immediately prior to the start of their ASTROTECH appointment (time spent as part of a procedure for obtaining refugee status under the Geneva Convention, compulsory national service and/or short stays such as holidays are not taken into account).
- Candidates are in the first 4 years of their research careers at the start of their ASTROTECH appointment (full-time equivalent research experience, measured from the date when a researcher obtained the degree entitling him or her to embark on a doctorate) and have not been awarded a doctoral degree

The ASTROTECH consortium has the aim to reach a good gender balance.

Terms of Employment

The selected candidate will be offered a full-time PhD student position for 3-years, in the EC funded Horizon 2020 Marie Curie Innovative Training Network (ITN) ASTROTECH project (<http://www.astrotechproject.eu>), at the Institute of Biomedical Engineering (INEB)/Institute for Innovation and Health Research (i3S), Porto, Portugal.

The terms of employment and salary are in accordance with the local and national rules and the rules and regulations laid down by the European Union's Horizon2020 Marie Skłodowska-Curie Action European Training Network. The ESR salary is subject to local tax, social benefit and other deductions following national regulations.

The exact net salary will depend on your eligibility to receiving some tax benefit. The student, if eligible, will request this benefit to the Tax Authority that will make the final decision. The tax benefit cannot be guaranteed. With the tax benefit, the minimum net salary is approximately € 1,700 (one year includes 12 + 2 months of salary (Holidays and Christmas allowances)). The gross salary is supplemented by lunch allowance of €4,77 per working day. Collective working insurance, and a pension scheme partly paid by employer, that includes access to a family doctor, sick and parental leave, among others, is available. At INEB, the mobility allowance is already included in the ESR living allowance (salary).

There is an individual internal training budget to attend external courses, conferences or workshops. Travel for partners and visa costs, within the scope of laboratory rotations, are financed by the project.

Some useful information:

<https://ec.europa.eu/social/main.jsp?langId=en&catId=1125>

<https://www.expatica.com/pt/living/gov-law-admin/social-security-in-portugal-105303/>

https://sigarra.up.pt/up/en/WEB_BASE.GERA_PAGINA?p_pagina=gateway-estudantes-internacionais

How to Apply

If you meet all the eligibility criteria, please submit your application ESR/ASTROTECH/INEB/2904/2021, no later than June 15, 2021 (23h59 GMT+01:00). Applications received via other channels are not taken into account. The application should be complete, including:

- One pdf with an evidence-based CV
- Motivation letter for the selected position

- Two (2) References (with contact information: email and/or phone) from previous supervisors/mentors

The consortium commits itself to adhere to the principles of the 'Code of Conduct for the recruitment of researchers (2005)'.

Researchers will be selected following an open, transparent, merit-based, impartial and equitable selection procedure.

Recruitment Procedure

1. Candidates can only apply at the following link <https://dozer.i3s.up.pt/applicationmanagement/#/addapplications/ESRASTROTECHINEB29042021>.
2. The Selection Committee will review all received applications and preselect around 5 candidates based on the evaluation of the fulfilment of the requirements set on this page.
3. The long-listed candidates are invited for a first interview round and subsequently short-listed candidates are invited in a second round, both to be conducted through online video conferences with the Selection Committee. The selection committee will be instructed on gender-bias and given sufficient time to go through the applications to further reduce the chance of bias.
4. The top ranked short-listed candidates for the position are discussed within the Selection Committee.
5. The final short list consists of the most suitable candidate for the available position, as well as 1-2 back up candidates (if available).
6. The final candidate is invited to be appointed.

For further information, applicants may contact the principal supervisor: Dr. Ana Paula Pêgo (apego@i3s.up.pt). An ASTROTECH INFO DAY will be held online at the end of May, where candidates can get further info on the project and get to know project members. Please, consult the project website (<http://www.astrotechproject.eu>) on a regular basis to obtain updated information.

Non-discrimination and equal access policy: INEB actively promotes a non-discrimination and equal access policy, wherefore no candidate can be privileged, benefited, impaired or deprived of any rights whatsoever, or be exempt of any duties based on their ancestry, age, sex, sexual preference, marital status, family and economic conditions, instruction, origin or social conditions, genetic heritage, reduced work capacity, disability, chronic illness, nationality, ethnic origin or race, origin territory, language, religion, political or ideological convictions and union membership.