***Marie Curie Early Stage Researcher in ITN* - Astrotech GA *956325*** **- Disruptive materials, technologies & approaches to unravel the role of Astrocytes in brain function and dysfunction: towards to Glial interfaces**

**OFFER DESCRIPTION**

A position is available for an Early Career Researcher in the ITN Astrotech (<https://cordis.europa.eu/project/id/956325>, www.astrotechproject.eu) at University of Bari Aldo Moro (UniBA) in Bari, Italy.

The European Marie Skłodowska-Curie Innovative Training Network ASTROTECH brings together 11 beneficiaries and 14 partners belonging to 9 European and Non-EU countries, including the participation of 5 partners from the private sector.

ASTROTECH mission is to create and develop the field of Glial Engineering, providing innovative tools to record, study, and manipulate astrocytes in the healthy and diseased brain. To this goal, the ASTROTECH network gathers all complementary expertise for engineering biomaterials, nanostructured interfaces and optoelectronic devices for stimulation, recording and biosensing of astrocytes, joint to computational approaches to describe and predict neuron-astrocytes interactions.

This will happen by giving 15 Early Stage Researchers (ESRs) exposure to a wide spectrum of expertise: state-of-the-art biomaterials interfaces, electronic, photonic devices will be combined with in depth knowledge on optogenetics, neuroscience, glial physiology and biology and computational methods to validate the developed tools in vitro, ex vivo, in silico and in pathological models of glioma, ischemia, epilepsy and depression.

By monitoring **AQP4 mediated water dynamics,** UNIBA has the scientific task of 1) contributing to the development and validation of optogenetics approaches, optical and photonic tools by in vitro and ex vivo experiments; 2) validating healthy and **astrogliotic cell interaction** with nanostructured biomaterials; 3) studying **glioma and gliosis** *in vitro* and in *in vivo*. The ESR project title will be “**Monitoring of astroglial water channel proteins structure and function”.**

In particular, the goals of ESR activity will be related to:

* Identifications of the effect of photostimulation on water transport;
* Validation of glial interface *in vitro* model at molecular and cellular levels and identification of the role of astrocytes water channels and permeability in cell material interaction;
* Identification of mechanisms underlying gliotic cell migration and gliotic scar formation in ASTROTECH scaffold, role of water channels and cell volume in organoids and gliotic astrocytes and relative model;
* Identification of mechanisms beyond glioma cells proliferation role of water channels and cell volume in 3D ASTROTECH;
* Definition of the role of AQP4 assembly in Ischemia.

The candidate will participate to events organised by the network (workshops, summer schools, conferences, etc.) and carry out secondments to partner sites (both academic and industrial).

**During the Project implementation, the candidate will be exposed to a multidisciplinary environment with merging excellence in competence and state-of the art infrastructure in Neuroscience, Biomaterials Science, Engineering, Chemistry, Physics both Academic and
Private sector. Complementary skills will be promoted by specific training sessions and defined in career development plan, shared with supervisors.**

ELEGIBILITY:

The Early Stage Researcher can be of any nationality. At the time of recruitment by the host organisation, the applicant must not have resided or carried out his/her main activity (work, studies, etc.) in the country of the host institute (Italy) for more than 12 months in the 3 years immediately prior to the recruitment date. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention are not taken into account

The applicant shall, at the time of recruitment, be in the first four years of his/her research career and have not been awarded a doctoral degree. (This time is measured from the date of award/diploma of the most recent taught degree, time dedicated to teaching is not considered);

**Requirements:**

• University degree in Chemistry, Pharmacy, Biochemistry, Chemical Pharmaceutics, Biology, Neuroscience, Biological Science or equivalent, Bioengineering, Biotechnology (Applicant cannot hold a PhD degree obtained previously);

• Fluency in spoken and written English;

• Willingness to travel around Europe.

Others attitude and skilss:

* Previous experience in biomaterials science, electrophysiology, neuroscience, calcium imaging, electronic devices for biotechnology/bioelectronic will be positively evaluated
* Applicants should demonstrate ability to function within a large team, coordinate with colleagues and students and communicate across disciplines
* Applicants should demonstrate ability planning and managing day-to-day research activities.

**Starting date**

July 1, 2021

**Duration of recruitment**

Thirty-six (36) months

**Location**

Bari (Italy)

The salary will comprise a living allowance of € 122.899,68 for 3 years and a mobility allowance of €21.600,00 for 3 years. An additional allowance of € 9.000,00 for 3 years may be payable but is dependent on individual family circumstances, any salary figures are subject to further deductions based on the country the fellowship is held.

To apply for this studentship, please email an application consisting of:

-a motivation letter

-a full CV

-in the application a list of Reference persons to whom reference letter will be requested or the candidate should arrange that one recommendation letter is send to attention of Prof. Grazia Paola Nicchia, graziapaola.nicchia@uniba.it , to arrive no later than **30 May 2021**.

Application address postmaster@astrotechproject.eu

The ESR will be enrolled as PhD student at the PhD programme of Biosciences and Biotechnologies, held at UniBA (University of Bari, Department of Biosciences, Biotechnologies and Biopharmaceutics, DBBB).

Both CNR and University actively supports equality, diversity and inclusion and encourages applications from all sections of society. Open, Transparent and Merit-based Recruitment of Researchers – OTM-R will be applied in the selection.

We inform you that the data you provide will be processed for the sole purpose of evaluating professional profiles and selecting them according to the needs of the UniBA. Your data will be processed by the UniBA, based in Bari (Italy), Via Orabona, 4, as Data Controller, in compliance with the rules on protection of personal data, including those related to data security. We also inform you that, pursuant to article 15 and following articles of EU Regulation 2016/679 ("General Data Protection Regulation"), you may exercise your rights at any time by contacting the address indicated for the applications submission

1. To study the role of water channel proteins in astrocyte physiology *in vitro* in healthy and diseased astrocytes by performing functional and dynamics assays using **superesolution microscopy, TIRF microscopy and fluorimetric assays** on primary cultures and transfected cells;
2. To investigate the role of cell **actin dynamics** in cell/material interaction;
3. To define the role of AQP4 in **astrocytes differentiation** and neural development;
4. To analyse how astrocytes mechanisms and functions are affected by altering physical, chemical and molecular parameters;
5. To analyse how astrocytes mechanisms and functions are affected in glioma cells