

## PhD student position linked to an FPI Fellowship in the Clinical, Biomarker and Risk Factors Research Group Barcelonaβeta Brain Research Center

### About the employer

The Barcelonaβeta Brain Research Center (BBRC) is a new research center, constituted by the Pasqual Maragall Foundation. The goal of BBRC is to become an internationally recognized centre of excellence in our understanding of age-related cognitive disability in order to provide practical solutions to the global challenges posed by the world's aging population. Our goal will be achieved by championing primary and secondary prevention programs for Alzheimer's disease and other related neurodegenerative disorders, the study and promotion of healthy aging, and the research of the basic physiological mechanisms of cognitive functions affected by healthy or pathological aging such as memory, learning and decision-making, among others. The vision of BBRC is to provide the society with distinct and innovative solutions for age-related cognitive disability by leveraging these complementary research programs in order to attain a multidisciplinary comprehension of the aging process and the pathophysiology of neurodegeneration.

Pasqual Maragall Foundation, Pompeu Fabra University and "la Caixa" on are permanent members of the BBRC Board. International competitive recruitment, state-of-the-art scientific facilities, effective management and continuous high-standard peer-review evaluation are the BBRC core proceedings to ensure achieving world-class research results. BBRC is affiliated and located in the Campus Ciutadella of the Barcelona Pompeu Fabra University, the building contains excellent technical facilities, including a research-dedicated 3T MR scanner, Clinical Trials facilities, EEG and Eye Tracker labs.

BBRC is also part of the Barcelona Biomedical Research Park (PRBB), a large research facility that hosts other seven different research institutions related to biomedical research, including the Center for Genomic Regulation (CRG), the Hospital del Mar Medical Research Institute (IMIM), the Department of Experimental and Health Sciences of the Pompeu Fabra University (CEXS-UPF), the Institute of Evolutionary Biology (IBE CSIC-UPF), the Barcelona Institute of Global Health (ISGlobal) and the Barcelona site of the European Molecular Biology Laboratory (EMBL), among others, in a multidisciplinary, collaborative and stimulating international environment in close contact with a clinical setting, thus conducive to translational research.

For more information see: [www.fpmaragall.org](http://www.fpmaragall.org) and [www.barcelonabeta.org](http://www.barcelonabeta.org)

### About the project

ALFA (for ALzheimer and FAMilies) is a prospective study that follow-ups a cohort of cognitively unimpaired participants, most of them first-degree descendants of AD patients. The ALFA parent cohort is composed of 2743 cognitively unimpaired participants representing the whole spectrum of risk of developing AD that will leverage with different projects. ALFA baseline visit

included full cognitive evaluation, lifestyle habits questionnaires and DNA extraction for genetic characterization. Further, comprehensive cognitive and risk factors assessments, including lifestyle (eg. physical activity, cognitive activity, sleep), vascular (eg. hypertension, obesity), and psycho-affective factors (eg. stress, anxiety, depression) are available for these participants. In addition, ~1500 ALFA participants have also completed imaging assessments (structural and functional MRI). Nested to ALFA, the longitudinal ALFA+ cohort study will serve, through deep phenotyping, to untangle the natural history of the disease and to model its earliest stages to develop successful trials. Our most ambitious aim is to follow ALFA+ study participants throughout their lives. On the top of that the assessments performed to ALFA participants, ~400 ALFA+ individuals have also completed amyloid and glucose PET imaging and lumbar puncture to determine biomarker levels in CSF. Follow-up visits of ALFA+ participants are currently ongoing.

Within the ALFA program, we are offering a 4-year PhD position funded by the FPI program (Formación de Personal Investigador) and associated to the project “Contribution of lifestyle to brain resilience” funded by the Ministry of Science and Innovation (PI: Eider Arenaza-Urquijo). The study aims at understanding lifestyle habits and brain mechanisms associated with incipient pathological changes as well as with preservation of brain structure and function during midlife. Furthermore, we have collected lifestyle data in the context of the covid19-related home-confinement that will be also analyzed within the context of this project. The ALFA study represents a unique cohort to understand why some people are resilient to pathological changes while others are more vulnerable and enter in the pathological pathway during midlife.

## **About the job**

BBRC invites applications for a full-time 4-year PhD student position funded by the FPI program and associated to the project “Contribution of lifestyles to brain resilience” led by Dr. Eider Arenaza-Urquijo. The project will be carried out within the Clinical, Biomarker and Risk Factors Research Group of the Alzheimer Prevention Program.

## **Main Responsibilities**

The responsibilities for this position include:

- To develop comprehensive methods for analyses of lifestyle, vascular and psycho-affective risk factors and cognitive data,
- To define and carry out cross-sectional and longitudinal imaging data analyses (MRI and PET),
- To develop imaging-based techniques to identify resilient and vulnerable participants,
- To prepare internal project reports, presentations at scientific conferences and scientific articles,
- To participate in regular internal meetings and internal as well as external collaborations,
- To contribute to the scientific work of the Clinical, Biomarker and Risk Factor Research.

## Required qualifications and professional experience

- Applicants must hold an MSc in Neurosciences, Psychology, Biology or related fields that allows them to enter a University PhD program.
- Familiarity and/or expertise with imaging software and imaging and cognitive data analysis will be an asset (not a requirement).
- Familiarity with programming languages (R, Matlab, etc.) will be an advantage (not a requirement).
- Methodological skills such as knowledge in statistics will be an advantage.
- Previous experience with neuroscience research will be an advantage.
- Excellent communication and writing skills in English are necessary.
- Ability to think independently and work collaboratively.

## We offer

- Full-time position, 38 hours weekly.
- Starting date: April/May 2021 (Application to the PhD program should be done by Sep-Oct 2020).
- Salary will be in accordance with qualifications and experience to BBRC's salary scales.
- The position is scheduled initially for 3/4 years.

We offer work in a highly stimulating team, and BBRC offers and promotes a diverse and inclusive environment. In the foundation we also care about developing your professional career so you will participate in internal and specific training for your job, promotion opportunities and development of your professional career. We evaluate the potential of our team in order to develop those skills necessary to achieve a high level of professional performance.

## Application process

To apply, please submit a single PDF file containing the following:

- 1) Cover letter describing research interests and relevant background;
- 2) CV
- 3) The names of up to three individuals who could provide reference letters. All files or inquiries should be submitted electronically to: [rh@barcelonabeta.org](mailto:rh@barcelonabeta.org)

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**Deadline: September 15<sup>th</sup> 2020**

We inform you that your personal data will be part of a file which Pasqual Maragall Foundation and Barcelonaβeta Brain Research Center is responsible for, in order to manage the job offer you have requested. Once the process is complete, the data processed will be erased.

You have the right to exercise the rights of access, rectification, cancellation and opposition recognized in Regulation (EU) 2016/679 (General Data Protection Regulation), to be addressed to the Pasqual Maragall Foundation and Barcelonaβeta Brain Research Center: c/ Wellington 30, 08005 Barcelona.