Data Scientist / computational biologist position in the ERC Starting Grant project HeBe in the Barcelonaβeta Brain Research Center

About the employer

The Barcelonaβeta Brain Research Center (BBRC) is a research center, constituted by the Pasqual Maragall Foundation and the Pompeu Fabra University. 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. The vision of BBRC is to provide society with distinct and innovative solutions for age-related cognitive disability by leveraging complementary research programs to attain a multidisciplinary comprehension of the aging process and the pathophysiology of neurodegeneration.

Pasqual Maragall Foundation, Pompeu Fabra University and "La Caixa" Foundation 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.

BBRC endorses the Requirements and Principles of the **European Charter for Researchers**, the **Code of Conduct for the Recruitment of Researchers**, and Open, Transparent, Merit-based recruitment promoted by the European Commission and follows Equal Opportunities policies. On October 2020, BBRC Barcelona was awarded the '**HR Excellence in Research**' logo. This recognition reflects the commitment of the Institute to the continuous improvement of its human resources policies.
For more information see: www.fpmaragall.org and 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.

Our institution has recently been awarded with the prestigious a **European Research Council (ERC) Starting Grant** project. The project is entitled **"Identification of age-related Human Blood factors as a therapeutic target for Alzheimer's disease (HeBe)"** (PI: Marc Suárez-Calvet). HeBe is an ambitious project aimed at discovering blood factors that have the capacity to rejuvenate the brain and could hence be used as therapeutic targets in age-related diseases like AD (https://www.barcelonabeta.org/en/hebe). Following ERC philosophy, this is a high-risk/high-gain project.

About the job

At BBRC, we look for a **highly motivated Data Scientist / Computational biologist** to join our team and work in the ERC Starting grant-funded HeBe project. The scientist will work in the new BBRC lab, which is located in the PRBB building, under the supervision of Dr Marc Suárez-Calvet.

The selected candidate's **main duty** will be to study the proteomic and metabolomic data of individuals of the ALFA cohort that have an extreme biological age phenotype. To this end, they will interrogate the proteomics (mass spectrometry, O-Link) and metabolomics data generated after analyzing the blood samples of these extreme groups. The appointed candidate will work in close collaboration with a PostDoc with expertise in mass spectrometry proteomics and the support of the proteomics unit at PRBB (led by Eduard Sabidó, http://www.crg.eu/proteomics) and the Clinical Metabolomics Platform at IMIM-Hospital del Mar (led by Óscar Pozo). Moreover, the appointed candidate will work on integrating genomic data and plasma proteomic analysis using Mendelian randomization, with the support of the Genomics group at BBRC. Therefore, daily work will be in close interaction with colleagues from several departments, meaning that excellent interpersonal and communication skills are essential.

Moreover, the selected candidate will be encouraged to join currently on-going projects of our team, focused on the measurements of fluid biomarkers in the preclinical stage of Alzheimer's disease. Moreover, extensive fluid biomarker data of the ALFA cohort is already available, which can be analysed together with the clinical, genetic, cognitive and neuroimaging data available. Our center excels for its multimodal approach.

The selected candidate will also be given the opportunity to investigate research questions that drive their curiosity. They will be also expected to supervise junior team members and closely collaborate with projects of other team members. Funding to attend international scientific meetings will be provided. The post will be funded for 3 years in the first instance. The start date for the position is Autumn 2021, but negotiable +/- a few months.

Responsibilities

- Analise and visualize blood proteomics (mass spectrometry, O-Link) and metabolomics data of the HeBe study.
- Generate and maintain databases, programming, and statistical analyses of HeBe study and other projects of the group.
- Participate in the multimodal analyses of the ALFA study.
- Participate in the SCALLOP consortium (Systematic and Combined AnaLysis of Olink Proteins) in order to discover genetic associations with proteins (www.olink.com/scallop/).
- Assisting and training of other members of the group in statistics and data analysis.
- Prepare and publish high quality scholarly papers, contributing to the academic environment of the laboratory and institute. Participate in applications for competitive research funding support.
- Participate in regular internal meetings and internal as well as external collaborations.

Required qualifications, competences and technical skills

Must have:
- A PhD degree (or expected to be obtained soon, or equivalent industry experience) in bioinformatics, biostatistics, computational biology, data science or similar. Alternatively, a PhD in neuroscience or medical or biological sciences with a strong record of high-throughput data will also be considered.
- Previous experience in analysing a diverse set of proteomics datasets.
- Very strong statistics and data analyses skills. A high priority will be given to candidates with competence in generating, leveraging, curating, analyzing and publishing 'big data'.
- Strong experience in the use of a high-level programming language such as R or Python.
- Familiarity with code repositories, such as Github.
- A solid publication record in peer-reviewed international journals
- Excellent communication and writing skills in English.
- Excellent skills in data presentation and visualization.
- Able to work both independently and collaboratively.
- A high level of motivation, drive, initiative and enthusiasm.

Desirable but not required/ Nice to have:

- Experience in research on Alzheimer's disease or other neurodegenerative diseases.
- Experience in analyses of clinical and biomarker data. Experience with analyses of longitudinal data.
- Experience in analyses of multiple type of data (genomic data, neuroimaging, cognition) is a plus.
- Experience in artificial intelligence and machine learning.
- Experience in supervising undergraduate students, leadership roles.

We offer

- We offer a unique research opportunity in a highly innovative project in a multidisciplinary institution.
- A brand-new *state-of-the-art* lab located at the PRBB (www.prbb.org).
- Starting date: Autumn 2021 (starting date can be negotiated).
- The position is initially scheduled for 3 years (and may be extended).
- Salary will depend on experience and will be in accordance to BBRC's salary scales.

We offer and promote a diverse and inclusive environment and welcomes applicants regardless of age, disability, gender, nationality, ethnicity, religion, sexual orientation or gender identity.
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

Selection Process

Pre-selection: The pre-selection process will be based on qualifications, expertise and motivation reflected on the candidate cover letter and CV. It will be merit-based.

Interview: Preselected candidates will be interviewed by Dr Suárez-Calvet and other team members as well as staff from the Human Resources Department.

Offer Letter: Once the successful candidate is identified the Human Resources department will send a Job Offer, specifying the start day, salary, working conditions, among other important details.

Application process

To apply, please submit a single PDF file containing the following:
1) Cover letter addressed to Dr Marc Suárez-Calvet 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

Subject: (BIO) Data Scientist HeBe project

Deadline: 30st June 2021