We are recruiting an Early Stage Researcher to work on a decision-support system based on MRSI data at 3T, for glioblastoma therapy response follow- up, as part of a Ph.D. program funded by the INSPiRE-MED European project.

We seek a highly motivated and qualified individual as Early Stage Researcher for a three-year applied research project leading to a Ph.D. The successful candidate will contribute to the development of advanced biomedical research tools in the field of Magnetic Resonance Spectroscopy and Imaging, and its application to the clinical day-to-day practice.

Project description: This position is one of the 15 ESR positions of the INSPiRE-MED European Training Network, which focuses on the development of Magnetic Resonance Spectroscopy (MRS) and MR Spectroscopic Imaging (MRSI) combined with Positron Emission Tomography (PET), enhanced by machine learning (ML) techniques.

The main aim of the Ph.D. project (ESR12) will be the development of a ML-based medical decision-support system based on MRSI data at 3T, for glioblastoma therapy response follow-up.
The ESR will develop a novel medical decision support system (MDSS) focused on glioblastoma therapy response follow-up, based on magnetic resonance spectroscopic imaging (MRSI) data, able to take and process data from multiple MRSI formats and centres. For each patient's MRSI, the MDSS should deliver a nosological or classification image, ready to be fused with images of other MR modalities from the same patient. The DSS will be integrated into the interface of the academic version of jMRUI, in a way that allows clinicians evaluate the system with their data. An important part of of the project will be the incorporation of automated MRSI artifact detection and removal tools.

The Ph.D. project will include three-month secondments at Universität Bern (Switzerland), the Institute of Scientific Instruments in Brno (Czech Republic), as well as ICOmetrix in Leuven (Belgium), that will allow the comprehensive expansion of the research.
Research environment: This project is hosted by the CIBER group CB06/01/0010. The ESR will be physically located at the Universitat Autònoma de Barcelona (UAB), where the Biomedical Applications of MR group is located. The ESR will benefit both

from the UAB and the CIBER infrastructure. The selected candidate will be able to take advantage of the unique set-up of the INSPiRE-MED network, encompassing 12 academic and 9 industrial partners providing the young researchers with transferable and generic skills as well as a comprehensive, wide-ranging education on the basic principles of medical imaging and image analysis. This multi-disciplinary environment encompasses physics, mathematical and computer sciences, with applications in medicine and biological sciences.

The ESR will register for the Ph.D. in Bioinformatics at the UAB, and will be jointly supervised by Dr. Margarida Julià-Sapé (https://orcid.org/0000-0002-3316-9027), biomedical scientist from CIBER/UAB and Dr. Alfredo Vellido, ML scientist, from Universitat Politècnica de Catalunya (UPC BarcelonaTech)/CIBER (https://orcid.org/0000-0002-9843-1911).

Your profile: You should have:

- A master's degree in biomedical, computer science, telecommunications engineering, or similar areas, or, alternatively, a similar degree with an equivalent academic level. Background in ML and/or data science will be a plus.

- An excellent command of the English language (C1), and willingness to learn some basic Spanish during your contract period, in order to interact with the clinicians involved in the project and also with the rest of the research group, Department and Doctoral school.

- Specifically, you should be able to prove your programming skills. Command of Java and/or Python programming as well as in Matlab/R will be an assset.

- A genuine interest in biomedical imaging, cancer and research should motivate your application, since you will be based in a Biomedicine Institute, surrounded by Biochemists.

- As a successful candidate you should also have motivation and capability of creative- and critical thinking, independent thought and experimentation, self-motivation, curiosity, and resilience.

- You should also have solid social abilities allowing an active participation in the European research network, fruitful exchanges with other students and researchers, and an excellent integration in the team of our research group. You should be ready and able to travel in Europe for the research network meetings as well as for sharing the experience of your secondment teams.

Eligibility and Mobility Rules:

- Early-Stage Researchers shall, at the time of recruitment by the host organisation, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree.

- At the time of recruitment by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of

their host organisation for more than 12 months in the 3 years immediately prior to the reference date.

Location:

- [CIBER group CB06/01/0010](#) at Universitat Autònoma de Barcelona, Cerdanyola del Vallès (Barcelona), Spain.

Gross salary (pre-employer/employee and income tax):

- 3119.58 €/month

Mobility allowance (pre-employer/employee and income tax):

- 600 €/month

Family allowance (pre-employer/employee and income tax):

- 500 €/month (if applicable)

Start date:

- September 2019

Duration:

- 36 Months

Summary of requirements:

- *Required Education Level Degree:* Master Degree or equivalent
- *Degree Fields:* biomedical, computing, telecommunications engineering or similar degree.
- *Required Languages and Level:* English / C1
- *Additional Requirements:* Requirements set by the PhD Programme of choice at Universitat Autònoma de Barcelona.
- *MCSA ITN Requirements:* Comply with the Eligibility and Mobility Rules for Early Stage Researchers (see above).

How to apply

- Send an application letter or email with your Curriculum Vitae, a motivation letter, and the names and contact details of two/three people who agreed to write a reference letter to Margarita Julià (margarita.julia@uab.cat).

Application closes on April 22th 2019.