

PhD at Fetal I+D within INPhINIT "la Caixa" Doctoral Fellowship Programme

INPhINIT is a new **Doctoral Fellowship Programme** promoted by the "la Caixa" Foundation and devoted to attract **international Early Stage Researchers** to the top Spanish research centres in the areas of Bio and Health Sciences, Technology, Engineering and Mathematics.

Details of the fellowship:

- 3-year contract with a competitive gross salary
- Complementary training including Technology Transfer and Entrepreneurship workshops and Professional and Career Development sessions.

For all the details of the programme, application, and eligibility click [here](#).

Application deadline: 01/02/2018

Requirements for the candidates:

- To have completed the studies in a **life sciences** field that lead to an official university degree awarding 300 ECTS credits, of which at least 60 ECTS credits must correspond to master level.
- To be in the first four years of their research careers and not yet have been awarded a doctoral degree.
- To fulfill the mobility requirement: Candidates must not have resided or carried out their main activity (work, studies, etc.) in Spain for more than 12 months in the 3 years immediately prior to May 29th 2018.
- To have a demonstrable level of English (B2 or higher) and excellent team working and communication skills.

Research project description:

At the Fetal and Perinatal Medicine Research Group at IDIBAPS, we identify the fetus as a patient for early diagnosis and treatment of fetal diseases such as **intrauterine growth restriction (IUGR)**. IUGR is defined as the failure to achieve the endorsed growth potential affecting 7-10% of pregnancies. Our research has contributed significantly to show that IUGR are at higher risk of adverse neurodevelopmental and cardiovascular outcomes ("fetal programming"). However, no preventive strategies so far have shown to be effective. One of our main challenges is to develop strategies to improve health outcomes in IUGR. Our preliminary data suggest that therapies based on nutritional supplementation might be beneficial.

Hypothesis: We hypothesize that **supplying nutrients** to the mother or directly to the fetus is an effective strategy to improve outcomes in IUGR

Aims:

1. To develop an optimal therapy based on nutritional supplements, neuroprotective compounds and/or direct fetal nutrition by invasive techniques for IUGR
2. To demonstrate the beneficial impact of those therapies on survival, neurodevelopment and cardiovascular outcomes in IUGR

Methodology:

Experimental study based on animal models (rabbit and rat) of IUGR. We aim to refine a putative prenatal treatment of IUGR fetus by **seeking the optimal conditions** regarding the dose, timing, type of compound and administration method using fetal invasive monitoring and therapeutic techniques. Main outcome measures will be **survival, neurodevelopment and cardiovascular outcomes** by means of advanced fetal imaging and microscopy, gene expression and functional outcomes.

Expected Results:

We expect to provide an effective therapeutic strategy for IUGR based on maternal or fetal nutrient delivery. This would improve not only perinatal survival but also long-term structural/functional outcomes for vital organs such as brain and heart.

The Fetal and Perinatal Medicine Group at IDIBAPS led by Dr. Gratacós is a translational biomedical research team linked to BCNatal (Hospitals Clínic and Sant Joan Déu) and Barcelona University. The group includes more than 70 international researchers, combining fetal cardiology, neurodevelopment, reproductive medicine, biology and bioengineering to develop highly competitive research on fetal physiology/disease. The PhD candidate will be integrated into a large research group with high scientific impact in the field of fetal medicine/therapy. For further questions, please contact maguile@clinic.cat