

We look for a highly motivated and passionate **PhD researcher** to apply for the 3 year doctoral fellowship INPhINIT-RETAINING organized by “La Caixa Foundation” aim to promote research of excellence (<https://obrasociallacaixa.org/en/investigacion-y-becas/becas-de-la-caixa/doctorado-inphinit/retaining>).

## **RESEARCH PROJECT**



Constitutional *MLH1* epimutations are an alternative cause for Lynch syndrome, characterized by monoallelic methylation of the *MLH1* promoter throughout normal tissues, resulting in allele-specific loss of *MLH1* expression. While secondary epimutations are caused by an adjacent genetic alteration and are dominantly transmitted; typically primary *de novo* epimutations that are reversible between generations. After the extensive molecular characterization of our series (PMID 22763379, 30283143; Dámaso et al. Clin Epigenetics 2019 in press), our aim is to elucidate the molecular mechanisms underlying constitutional *MLH1* methylation.

Our hypothesis is that primary *MLH1* epimutations can be caused and/or maintained by DNA structural changes. To address this issue we will undertake a comprehensive study of the genomes and epigenomes of the unique set of cancer-affected families with *MLH1* epimutations collected by our group and Dr. Hitchins (Cedars-Sinai) using modern genomic and epigenomic techniques capable of detecting and resolving complex genetic and epigenetic alterations.

Our overarching goal is to gain insight into the molecular basis of hereditary cancer, to personalize risk assessment to patients and relatives, and to individualize follow-up, treatment and prophylactic measures.

## **JOB DESCRIPTION**



Candidates will join a dynamic, young and well-equipped research group with strong interactions and multidisciplinary research. The group offers a stimulating research atmosphere and an environment in which collaboration and exchange of ideas and techniques is actively encouraged with a strong commitment to research which provides a lively and stimulating environment for young talents.

The project will be carried out in collaboration with Dr. Hitchins (Cedars-Sinai, USA) and Dr. Pasquali (Institut Carreras, Spain). The candidate will be involved in the setting up and validation of a combination of cutting edge experimental (epi)genetic and genomic approaches to analyze chromatin organization. Moreover, short-stays in the collaborators centers are planned.

During the time in our laboratory, the candidate will benefit from a mentoring plan and substantial infrastructure to support his development.

**Group:** Hereditary Cancer Group of Bellvitge Biomedical Research Institute (**IDIBELL**) - Barcelona

**Annual brut salary:** 27.725 € + 3.564 € for conferences, workshops, short-stays...

**Starting date:** September – November 2020

### **Requirements:**

- Master's degree with background in biomedical sciences, pharmacy, biology or related disciplines (qualification  $\geq 7.5$ )
- He/she has resided in Spain for more than 12 months in the last 3 years
- He/she will be able to accredit his/her knowledge in the English language (IELTS, TOELF, and University of Cambridge).
- Willing to develop his/her scientific communication skills not only by publishing articles or oral presentations but also by participating and organizing dissemination activities

Send us your **motivation letter** and a **complete CV** with achievements, grades and **3 references**.

## **CONTACT DETAILS**



**Promotor:** Dr. Marta Pineda

**Research Group website:** <http://www.idibell.cat/en/content/hereditary-cancer>

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