

PhD STUDENT – GENETICS OF CANCER (REF.: PHD_MS_35)

The Josep Carreras Leukaemia Research Institute (IJC) is a non-profit research institute based in Barcelona and dedicated to advancing our understanding about leukaemia and related disorders, in partnership with the University of Barcelona and University Autònoma of Barcelona. The IJC has laboratories in three clinical campuses: i) Clinic Hospital, ii) Sant Pau Hospital and iii) Germans Trias i Pujol Hospital. IJC serves as a collaborative hub for basic investigators and physicians to work together on fundamental biological and clinical aspects of leukaemia. The IJC offers an excellent work environment built around a multi-disciplinary fusion of ideas and state-of-the-art facilities.

The Laboratory of **Genetics of Cancer**, within the Josep Carreras Leukaemia Cancer Institute (IJC), seeks a highly talented and motivated student to carry out a **PhD in biomedicine**.

The PhD student will join a renowned international institution in close contact with a major hospital in the area. The laboratory of Dr Sanchez-Cespedes is devoted to the genetic and molecular study of the mechanisms that drive cancer development. The group is internationally recognized for its contribution to the study of the molecular biology of lung cancer. Our research uses the latest high throughput sequencing technologies to create profiles and catalogs of the recurrently altered genes in cancer. We are also deeply interested in understanding the mechanisms by which the abnormal function of these genes contributes to cancer development. Ultimately, our purpose is to implement the clinical management of cancer patients and to design novel therapeutic strategies. The candidate will be part of our group and will be involved in these general goals.

Research Description

The complete genetic characterization of tumors is important to understand cancer development, to encourage the discovery of new drugs and to improve the selection of patients that may benefit from a given targeted cancer therapy. Our group is interested in the use of the latest high-throughput sequencing technologies to create profiles and catalogues of the recurrently altered genes in cancer. We are also deeply interested in understanding the mechanisms by which the abnormal function of these genes contributes to cancer development. Ultimately, our purpose is to define combinations of pathways according to the gene alteration profiles and the key molecule/s (Achilles' heel/s) that need to be blocked to effectively reduce or abolish proliferation and inhibit invasion/metastasis. We hope that our work can help to improve the clinical management of cancer patients and to design novel therapeutic strategies.

The *Cancer Genetics* group has eight members including postdoctoral researchers, PhD students, and technicians, and periodically also allocates master students from different Universities. Our team is multidisciplinary, working in close contact with clinicians and pathologists.

-Discovery of MAX inactivation in small cell lung cancer that disrupts the MYC-SWI/SNF programs and is synthetic lethal with BRG1. Romero OA, Torres-Diz M, (...) Montuenga LM, Kohno T, Yokota J, Sanchez-Cespedes M. Cancer Discovery (2014) PMID: 24362264. IF: 29.5.

-The SWI/SNF genetic blockade: effects in cell differentiation, cancer and developmental diseases. Romero OA, Sanchez-Cespedes M. Oncogene (2014) PMID: 23752187. IF: 7.9

-PARD3 inactivation in lung squamous cell carcinomas Impairs STAT3 and promotes malignant invasion. Bonastre E, Verdura S, Zoder van I, Facchinetti F, Lantuejoul S, (...) Roz L, Brambilla E, Savola S, Sanchez-Cespedes M. Cancer Res. (2015). PMID: 25833829. IF: 9.7

-Sensitization of retinoids and corticoids to epigenetic drugs in MYC-activated lung cancers by antitumor reprogramming. Romero OA, Verdura, S, (...) Sanchez-Cespedes M. Oncogene (2017) PMID: 27593925. IF: 7.9

-Genomic profiling of patient-derived xenografts for lung cancer identifies B2M inactivation impairing immunorecognition. Pereira C, Gimenez-Xavier P, (...) Sozzi G, Felip E, Montuenga LM, Roz L, Villanueva A, Sanchez-Cespedes M. Clin Cancer Res (2017) PMID: 28302866. IF: 10.1.

-MET-oncogenic and JAK2-inactivating alterations are independent factors that affect regulation of PD-L1 expression in lung cancer. Saigi M, Albuquerque-Bejar JJ, Leer-Florin AM, (...) Brambilla E, Sanchez-Cespedes M. Clin Cancer Res (2018) PMID: 29898990. IF: 10.1

-Determinants of immunological evasion and immuncheckpoint inhibition response in non-small cell lung cancer: the genetic front. Saigi M, Albuquerque-Bejar JJ and Sanchez-Cespedes M. Oncogene (2019) PMID: 31253869. IF: 7.9

-Genome-wide profiling of nonsmoking-related lung cancer cells reveals common RB1 rearrangements associated with histopathologic transformation in EGFR-mutant tumors. Pros E, Saigi M, (...) Felip E, Montuenga LM, Sanchez-Cespedes M. Ann Oncol. (2020) PMID: 31959344. IF: 18.2.

Please also visit our group webpage:

https://www.carrerasresearch.org/en/cancer-genetics_124455

What we need

- Candidates must have obtained a University Degree and a Masters Degree in biomedical sciences within the European Higher Education System.
- Candidates must have an excellent academic record, previous research experience, and a strong commitment for scientific research.
- Candidates must have high working knowledge of English
- Preferably, candidates may have expertise in molecular biology techniques and specific interest in cancer research.
- Bioinformatics skills (R, Bioconductor, etc.) will be positively evaluated

What we offer

- A PhD position starting in October/November 2020.
- An exciting and innovative research project.
- Incorporation in a first-level team.
- Working in the mixed basic and clinical research environment of the Josep Carreras Research Institute.

How to apply

To apply for this opportunity, please send your resume and a cover letter and (incl. the contact details of two referees) to jobs@carrerasresearch.org including the reference REF.: PHD_MS_35

Deadline for Applications

Please submit your application by September 13th, 2020.

Who we are?

Our mission is to carry out research into the basic, epidemiological, preventive, clinical and translational aspects of leukaemia and other hematologic malignancies.

The vision of the Josep Carreras Leukaemia Research Institute is that research will identify new therapeutic targets and enable us to develop more precise and less aggressive treatments. We aspire to understand the origin and development of leukaemia and other malignant haematological pathologies in order to be able to prevent them. We will work for a future in which all leukaemias will be curable.

For further information, please, visit our webpage: <http://www.carrerasresearch.org/en> and the Josep Carreras non-profit organization: <https://www.fcarreras.org/en>

The European Commission awarded the IJC the HR Excellence seal in July 2019. The IJC continues to work to maintain its policies in line with the Charter and Code principles. The HRS4R has the main objective of ensuring that research centers of excellence implement and respect the requirements of the European Charter for Researchers and the Code of Conduct for hiring researchers (from here on referred to as the Charter and Code) within their human resources policies.



This EC initiative aims to promote training, professional development, and mobility for all European scientists. The IJC supports these values and principles, which will not only serve to strengthen its internal policies but will actively stimulate excellent research and firmly situate the organization as an institution with a stimulating working environment that favors the development of its scientists.

IJC is an equal opportunity employer. We evaluate qualified applicants without regard to race, color, religion, sex, national origin, disability, and other legally protected characteristics.