iMM-Laço Hub is recruiting a Postdoctoral Computational Biologist under an Employment Contract <u>Reference IMM/CT/45-2022</u>

The iMM – Instituto de Medicina Molecular João Lobo Antunes (iMM), has recently created the iMM-Laço Hub that is a structure dedicated to the study of breast cancer to uncovered novel modalities of treatments (see http://immlaco.org). The iMM-Laço Hub opens a call for the hiring of a Postdoctoral Researcher under the project "***Multi-Dimensional Cartography of the Breast Cancer Micro-Environment***". See flyer here > ref IMM/CT/45-2022.

Work Plan and Objectives: In 2020, over 600 000 women died from breast cancer worldwide. Treatment of breast cancer, in particular metastatic, raises many challenges, due to resistance to available therapies. The development of novel, or combinatorial, treatments for breast cancer is an urgent unmet clinical need. We hypothesize that an Onco-Immuno-Microbial axis plays critical roles in breast cancer progression, response to therapy and even relapse. However, much is still to be understood about this three-dimensional crosstalk that holds therapeutic promises. Thus, our goal is to create an unprecedented map of human breast cancer that will encompass the genetic and clonal distribution of the tumour cells (whole genome/exome sequencing), the specific gene expression profile and the localisation and phenotype of immune/stromal cells (RNA-seq and multiplexed imaging), and the local microbiota (16S rRNA sequencing). *This multi-omics landscape* will be integrated and associated with clinical data using *dimensionality reduction approaches and machine learning* to unravel the major parameters and pathways that can be targeted to limit cancer progression and to determine the clinical course of the patients.

The success of this project lies on a strong multidisciplinary team. The successful candidate will be integrated in a collaborative team constituted by **computational biologist** (Dr. Nuno Morais[1,2]), **immuno-oncologist** (Dr. Karine Serre[3–9]), **clinician-scientists** specialised in breast oncology (Prof. Luis Costa[2,10], Dr. Rita Teixeira Sousa[11]), expert in **cancer-induced angiogenesis** (Dr. Sérgio Dias[12]) and **microbiologist** (Prof. Isabel Sá-Correia[13]).

What iMM seeks: The successful candidate must be a ***highly motivated***, ***pro-active***, ***independent***, ***gregarious*** and ***versatile*** individual to join our multi-disciplinary team. He/She should be passionate about iMM-Laço Hub's missions of bringing hope to the women who are diagnosed with breast cancer and of being an instrumental member of a multi-disciplinary team dedicated to create a cellular and molecular map of the breast cancer microenvironment for the design of novel therapies and to support clinical decisions.

The principal activities of the PostDoctoral Researcher will include:
- Performing the bioinformatics analyses and integration of the aforementioned complex data (exome, transcriptome, microbiome, etc.) from local tumour samples and public databases (e.g., The Cancer Genome Atlas)
- Leading the development of bioinformatics tools for non-computational researchers and oncobiologists to explore data generated by the project when publicly released
- Collaborating with and/or co-supervising computational biology MSc and PhD students
- Participating in the conception of projects related with the iMM-Laço Hub and in the writing of associated grant applications
- Reporting results to a multidisciplinary team of oncologists, immunologists, molecular biologists and computational biologists and jointly interpreting them
- Participating in the outreach and science communication activities promoted by the iMM-Laço Hub

The following skills and qualifications are required:
- PhD in Biological Sciences, Biomedical Sciences or Bioengineering, preferentially in Bioinformatics and/or Computational Biology
- Good programming skills, preferentially with advanced knowledge in programming in R
- Experience in bioinformatics analyses of next-generation sequencing data, preferentially transcriptomic data
- Knowledge in Statistics and Linear Algebra
- Aptitude to write and lead projects
- High organization skills and strong work ethics (care, rigor, consistency, intellectual honesty)

- Proficiency in English, spoken and written, and excellent verbal and written communication skills

What iMM offers: iMM will offer outstanding working conditions, including an unfixed-term full-time contract, starting predictably in July 2022, and the possibility to work in the interface between hospital and biomedical institute on clinical and basic research. iMM will also offer access to state-of-the-art high-performance computing infrastructure, namely a multi-hundred-core HPC cluster, as well as full support for individual postdoctoral and career development fellowship applications by a dedicated Pre-Award Unit.

Working Conditions: The employment contract has an estimated duration of 12 months (possibly extendable to a maximum of 48 months). Gross monthly salary is **2.153,94€**. The indicated amount will be subject to the mandatory taxes accordingly to Portuguese Labour Law.

How to apply: Please submit your detailed CV, motivation letter, PhD degree certificate and contacts of 3 references, from **11th of April 2022** until **30th of May 2022** through iMM website, by clicking in the "Apply" button below the position job ad.

Non-discrimination and equal access policy: iMM promotes a non-discrimination and equal access policy, wherefore no candidate can be privileged, benefited, impaired or deprived of any rights whatsoever, or be exempt of any duties based on their ancestry, age, sex, sexual preference, marital status, family and economic conditions, instruction, origin or social conditions, genetic heritage, reduced work capacity, disability, chronic illness, nationality, ethnic origin or race, origin territory, language, religion, political or ideological convictions and union membership.

Pursuant to Decree-Law nr 29/2001 of 3rd February, disabled candidates shall be preferred in a situation of equal classification, and said preference supersedes any legal preferences. Candidates must declare, on their honour, their respective disability degree, type of disability and communication / expression means to be used during selection period on their application form, under the regulations above.

Evaluation Criteria: Applications will be evaluated by Sérgio Dias, Nuno Morais and Karine Serre (all PhD's) in accordance with the following method:
-    1st Phase: Curricular evaluation: 45% and Motivation Letter: 20%
-    2nd Phase: Interview: 35%

Results: Both admitted and excluded candidates list and final classification list shall be posted at iMM website at https://imm.medicina.ulisboa.pt/jobs/#results and all admitted candidates will be notified by email.

Preliminary Hearing and Final Decision Deadline: Pursuant to article 121 of the Administrative Procedure Code, after notified, all candidates have 10 working days to respond. Panel's final decisions are pronounced within a period of 90 days, from application deadline.

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4. **Serre, K**., E. Mohr, K. M. Toellner, A. F. Cunningham, S. Granjeaud, R. Bird, and I. C. MacLennan. 2008. Molecular differences between the divergent responses of ovalbumin-specific CD4 T cells to alum-precipitated ovalbumin compared to ovalbumin expressed by Salmonella. *Mol Immunol* 45: 3558–3566.
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Lisbon, 08th of April 2022