Instituto de Medicina Molecular opens a call for a Postdoctoral Research Fellowship with the funding support from the European Research Council under the research project "IL-7/IL-7R signaling networks in health and malignancy" (ERC CoG-648455).

**Work Plan and Goals**
Roughly nine percent of T-cell acute lymphoblastic leukemia (T-ALL) pediatric patients display somatic mutations in the gene that encodes the interleukin 7 receptor (IL7R), leading to constitutive signaling. The successful candidate will be involved in the analysis of proteomics, transcriptomics and chemical screen datasets, and in their integration, in order to: 1) identify new genes and functional pathways associated with IL-7/IL-7R signaling; and 2) develop an unbiased and systematic view of the signaling landscape downstream from both physiological as well as mutant IL-7R activation. This will involve combining different pathway and network analysis tools, creating and/or implementing algorithms in order to generate landscape models that can be tested in the wet lab and reiteratively improved, and establishing an integrated online database for our datasets.

**Scientific Area:** Health Sciences - Oncobiology

**Candidate’s Profile**
- Candidate must have a PhD in Bioinformatics, Computational Biology or related area; and:
- Good general understanding of molecular cell biology and cell signaling;
- Experience in analysis of disparate 'omics data sets, including pathway-, network- and gene ontology;
- Know-how and creative ability to integrate different datasets into a coherent platform;
- Advanced programming experience in one or more of the common used languages, such as Python, Perl, and R/Bioconductor.

**Duration**
This is a 1 year scholarship, expected to be renewed yearly for a minimum of 2 years and up to 5 years.

**Law and Regulation**
Full-time scholarship, in agreement with Law nr 40/2004, of 18 of August (Estatuto do Bolseiro de Investigação Científica) and iMM Regulations of Scholarships and Professional Careers.

**Predicted Start Date:** The position is, unless otherwise arranged, expected to begin on October 1st of 2015.

**WorkPlace and Scientific Orientation**
The work will be developed in Dr. Barata’s Lab at iMM under his supervision. The work will be conducted in direct collaboration with the experimental biologists in the lab and in close contact with the computational and systems biology lab of Dr. Nuno Barbosa-Morais at iMM. In addition, Dr. Aviv Regev (Broad Institute, Cambridge, MA, USA) will act as consultant to the project.

**Fellow Monitoring Centre**
The monitoring centre is open on Tuesdays and Thursdays from 10am to 12pm, at Management Unit of iMM.

**Monthly Remuneration**
The net monthly remuneration is 1495€ (tax free), according to the applicable regulation. However, also according to the same applicable regulation and depending on the candidate’s experience and merit a higher salary can be negotiated. The amount will be paid through bank transfer. In addition, social security will be fully covered.

**Necessary Documents for Applications**
1) your CV, including list of publications;
2) a motivation letter with a short description of your previous research experience with relevance to the project, your main scientific achievements, and why you believe we should hire you;
3) two reference letters and/or reference contacts.
(all documents must be in PDF format and sent by email to imm-hr@medicina.ulisboa.pt, as detailed below.)

**Selection Method:** Initial screen (Phase 1): Motivation letter and CV evaluation (60%), based on published articles and respective impact factor, previous experience in methodologies of relevance to the project; and general adequacy of the track record to the project. The top candidates will be interviewed (Phase 2 – 40%).

**Evaluation**
Applications will be evaluated by a jury composed of Drs. João Taborda Barata, Nuno Barbosa-Morais and Edgar Gomes.

**Deadlines and Presentation of Applications**
The application call starts on August 3rd until September 6th. Questions about the position can be sent to joao_barata@medicina.ulisboa.pt.

Applications must be addressed to imm-hr@medicina.ulisboa.pt, with all documents detailed above in PDF format, indicating the reference of Fellowship (mandatory).

**Notification of Results**
The results will be published on the IMM website https://imm.medicina.ulisboa.pt and posted in the lobby of the Institute.

**Lisbon, July 17th, 2015**
The Executive Director of Instituto de Medicina Molecular
(Professor Maria Manuel Dias da Mota, PhD)
Three open positions in signaling in cancer financed by a European Research Council (ERC) consolidator grant: “IL-7/IL-7R signaling networks in health and malignancy” (ERC CoG-648455)

The Lab
In João T. Barata’s lab at iMM Lisbon we want to clarify the role that cell-intrinsic aberrations and microenvironmental factors play during tumor initiation and progression, metastasis, and response to treatment. Our goal is to characterize the cellular and molecular mechanisms underpinning these processes, identifying genes and signaling pathways that are implicated in cancer maintenance and expansion at different stages. Ultimately, we seek to identify and explore crucial biomarkers and molecular targets for the development of novel, more selective therapies against cancer. Great people with different backgrounds (biologists, biochemists, physicians), working in a fun and stimulating environment constitute one of the assets of our lab.

The Institute
With a young and vibrant, international, ambitious yet welcoming atmosphere iMM Lisboa – Instituto de Medicina Molecular is a leading Portuguese research institute, nurturing innovative ideas in basic, clinical and translational biomedical research. Located in the center of Lisbon in an academic campus that also includes the Faculty of Medicine of Lisbon University and the associated Hospital de Sta. Maria, and possessing state-of-the-art facilities, iMM Lisboa has the perfect setup to combine outstanding science with excellent quality of life, in a city that is among the best in Europe to live in (Monocle Magazine, 2011; CNN, 2015). More info on iMM Lisboa can be found at: https://imm.medicina.ulisboa.pt/en/

The Project
We are now seeking two post-doctoral fellows and one lab manager to integrate the research project “IL7sigNETure - IL-7/IL-7R signaling networks in health and malignancy”. Interleukin 7 (IL-7) and its receptor (IL-7R) are essential for normal T-cell development and function. However, they can also promote autoimmunity, chronic inflammation and cancer. We showed that patients with T-cell acute lymphoblastic leukemia (T-ALL), an aggressive hematological cancer, can display IL-7R gain-of-function mutations leading to downstream signaling activation and cell transformation. Despite the biological relevance of IL-7 and IL-7R, the characterization of their signaling effectors remains limited. We now propose to move from the single molecule/pathway-centered analysis that has characterized the research on IL-7/IL-7R signaling, into a ‘holistic’ view of the IL-7/IL-7R signaling landscape. To do so, we will employ a multidisciplinary strategy, in which data from complementary high throughput analyses (chemical genetics, transcriptomics and phosphoproteomics), informing on different levels of regulation of the IL-7/IL-7R signaling network, will be integrated via a systems biology approach. This will be complemented by: 1) cell and molecular biology experimentation for the characterization of new genes involved in IL-7/IL-7R-mediated signaling; 2) state-of-the-art transgenic and knock-in mouse and zebrafish models aiming at the dissection of the impact of aberrant IL-7R signaling on cancer formation; 3) pre-clinical testing of new potential therapeutic agents targeting aberrant IL-7R signaling. The knowledge we will generate should have a profound impact on the understanding of the fundamental mechanisms by which IL-7/IL-7R signaling promotes leukemia and reveal novel targets for fine-tuned therapeutic intervention in T-ALL. Moreover, the scope of insights gained should extend beyond leukemia. Our in-depth, systems-level characterization of IL-7/IL-7R signaling will constitute a platform with extraordinary potential to illuminate the molecular role of the IL-7/IL-7R axis in other cancers (e.g. breast and lung) and pathological settings where IL-7 has been implicated, such as HIV infection, multiple sclerosis and rheumatoid arthritis.

You
We are looking for highly motivated, creative, resilient, optimistic candidates that are enthusiastic about science, ready to take on new challenges and eager to participate in an ambitious project in which they can actually make a difference. Candidates should have an excellent track record, and a large degree of independence yet still having real fun in working also as team players towards common, demanding goals. Good English written and spoken skills are necessary.

In addition to these essential qualities, specifics of this position are as follows:

- Candidate must have a PhD in Bioinformatics, Computational Biology or related area; and:
  - Good general understanding of molecular cell biology and cell signaling;
  - Experience in analysis of disparate ‘omics data sets, including pathway-, network- and gene ontology;
  - Know-how and creative ability to integrate different datasets into a coherent platform;
  - Advanced programming experience in one or more of the common used languages, such as Python, Perl, and R/Bioconductor.

The successful candidate will be involved in the analysis of proteomics, transcriptomics and chemical screen datasets, and in their integration, in order to: 1) identify new genes and functional pathways associated with IL-7/IL-7R signaling; and 2) develop an unbiased and systematic view of the signaling landscape downstream from both physiological as well as mutant IL-7R activation. This will involve combining different pathway and network analysis tools, creating and/or implementing algorithms in order to generate landscape models that can be tested in the wet lab and reiteratively improved, and establishing an integrated online database for our datasets. The work will be conducted in direct collaboration with the experimental biologists in the lab and in close contact with the computational and systems biology lab of Dr. Nuno Barbosa-Morais at iMM. In addition, Dr. Aviv Regev (Broad Institute, Cambridge, MA, USA) will act as consultant to the project.

This is a 1 year scholarship, expected to be renewed yearly for a minimum of 2 years and up to 5 years. The net monthly salary is 1495€ (tax free), but depending on the candidate’s experience and proven track record a higher salary can be negotiated. In addition, social security will be fully covered.
The fellowship above is in accordance with the current Portuguese laws regulating the Statute of Science Research Fellows, namely Decreto-Lei no. 40/2004 of August 18 (republished in attachment to Decreto-Lei no. 202/2012, of August 27), and with the iMM Regulations of Scholarships and Professional Careers.

Questions about the positions can be sent to joao_barata@medicina.ulisboa.pt. Actual applications must include all the elements detailed below and be submitted strictly to the email address below.

The application call is open from August 3rd until September 6th. This position is, unless otherwise arranged, expected to begin on October 1st of 2015.

Please send (all in PDF format):

1) your CV, including list of publications;
2) a motivation letter with a short description of your previous research experience with relevance to the project, your main scientific achievements, and why you believe we should hire you;
3) two reference letters and/or reference contacts;

to imm-hr@medicina.ulisboa.pt, clearly indicating the reference of this position (IMM/BPD/41-2015).