INSTITUTO DE BIOLOGIA MOLECULAR E CELULAR
INSTITUTE FOR MOLECULAR AND CELL BIOLOGY

IBMC - Instituto de Biologia Molecular e Celular
Postdoctoral Position (f/m)

Internal Code: PR341701

Title: "Bacterial K^+ transporters are potential antimicrobial targets: mechanisms of transport and regulation"

Host Institute: Instituto de Investigação e Inovação em Saúde (I3s); Instituto de Biologia Molecular e Celular (IBMC), Porto, Portugal.

Group and PI: Structural Biochemistry, João Morais-Cabral

IBMC/i3S is opening **one Postdoctoral Position** to join the laboratory of "Structural Biochemistry". We are seeking a highly motivate postdoctoral researcher to study the mechanism of regulation of membrane proteins (more specifically, K^+ transporters) in *Bacillus subtilis*.

Potassium ions are the most abundant cation inside all cells and alterations in its intracellular concentration have repercussions in the activity of enzymes, folding state of proteins and nucleic acids, cellular turgor pressure and membrane electrical potential. Cells have therefore a network of proteins, including the crucial K^+ transporters, dedicated to K^+ homeostasis. Strikingly, in humans (and animals, in general) the components of this machinery are very different from the ones present in bacteria, archaea, fungi and plants. This difference arises from the fact that unlike animals, other organisms have reduced control over the extracellular milieu. As a consequence, in non-animal cells the molecular machinery involved in K^+ homeostasis plays a central role in adaptation to environmental changes. We propose that the uniqueness and physiological importance of proteins involved in K^+ homeostasis in bacteria makes them unexplored targets for antimicrobial strategies. Importantly, we need to increase our understanding about the molecular mechanisms that underlie their activity.

The successful applicant will work within a multidisciplinary environment that includes biochemists and structural biologists that study the molecular properties of the K^+ transporters present in *Bacillus subtilis* using *in vitro* approaches. This postdoctoral scientist will make use of our existing knowledge about the molecular properties of these transporters and explore their function in the cell using bacterial genetics, cell biology and imaging approaches, ultimately defining the regulation mechanisms of K^+ transport during environmental challenges and the interplay between different components of the K^+ homeostasis machinery.

Qualifications: Applicants must have (or be finalizing their studies towards) a Ph.D. in Microbiology, or similar degree. Have at least one publication as first author, a strong background in microbiology, and in particular extensive experience with molecular biology techniques, bacterial genetics and basic characterization of bacterial phenotypes. Experience in the application of cell biology approaches and imaging analysis in bacteria is highly desirable.

The contract offered will be different in accordance to the experience of the selected candidate:

- **a Post-doctoral fellowship** for candidates with less than three years of post-doctoral experience. Fellowships are regulated by current laws relating to the Statute of Science Research Fellows, namely Law 40/2004 of August 18, amended and republished by Decree-Law No. 202/2012 of 27

August and the Regulation of Scientific Research Studentships of IBMC approved by Fundação para a Ciência e Tecnologia (http://www.fct.pt/apoios/bolsas/docs/RegulamentoBolsasFCT2015.pdf);

- **a Fixed term contract** (level 1, salary index 28 TRU) for candidates with more than three years of post-doctoral experience. The contract is regulated by the decree-law 57/2016 from August 29, and the Portuguese Labour Law.

Starting date and duration: The tentative start date is 1st of March 2017. The position is initially for 10 months, but eventually renewable.

Selection Committee:

João Morais Cabral, PhD

Didier Cabanes, PhD

Carol Harley, PhD

Selection criteria: The ranking of candidates will be performed by a global evaluation based on the publication record relevant to the project, and his/her experience in previous projects relevant to the work-plan. The committee will evaluate the scientific and curricular achievements of the candidate in particular, quality of scientific production and motivation letter that should include a short description of the most relevant scientific achievements by the applicant. The best-ranked candidates will be invited for personal interview (via Skype if the researcher is located abroad). The jury may choose not to award the position if the expected candidate quality is not met.

Applications must be received from 13th of January until 13th of February 2017.

To apply for the Researcher Position, the interested candidate must hold a PhD degree and submit the following documents *via* the online application system (www.ibmc.up.pt/institute/open-positions): a) Complete CV; b) Letter of Motivation; c) Names and contacts of 2 potential referees at:
http://www.ibmc.up.pt/gestaocandidaturas/index.php?codigo=PR341701

The ranking list of candidates will be published at IBMC website, and the selected candidate will be notified by email.