IBMC - Instituto de Biologia Molecular e Celular

BI-Mestre fellowship (f/m)

Internal Code: Norte2020HOST31

Project: NORTE-01-0145-FEDER-000012, Structured Program on Bioengineering Therapies for Infectious Diseases and Tissue Regeneration

IBMC/i3S is opening 1 (one) BI-Mestre Fellowship to join its Research Program in Molecular biology of host-pathogen interactions and responses.

Title: Host cell repair mechanisms against bacterial toxins.

Admission Requirements:
We are looking for a Fellow holding a Master degree in Biology, Biochemistry, Microbiology, or related fields. Experience and full autonomy in Molecular and Cellular Biology, cell line culture and microscopy will be advantageous. English language, both spoken and written, and good interpersonal relationships in the context of a multidisciplinary research team are essential attributes.

Group: Molecular Microbiology

PI: Sandra Sousa/Didier Cabanes

Work Plan:

Bacterial pore-forming toxins (PFTs) are major virulence factors produced by human pathogens playing pivotal roles in severe bacterial infections. PFTs are secreted by the pathogen, insert in host plasma membrane (PM) and form stable pores that disrupt cell homeostasis, causing organism threat and concomitant bacterial dissemination [1,2]. To survive PFTs attack, host cells evolved repair mechanisms allowing the overcome of PM damages and resistance to cell death [3]. However, these mechanisms are not fully understood.

We recently revealed the key importance of ER proteins and their unexpected interplay with actomyosin cytoskeleton during cellular responses to PFTs-induced pores [4]. The main objective of this proposal is to identify novel proteins and signaling pathways involved in cellular repair against bacterial PFTs attack, thus promoting cellular resistance to cell death and consequently host survival to infection.

In collaboration with Dr A. Lacy-Hulbert (Benaroya Research Institute, Seattle, USA), we will follow a gain-of-function forward genetic approach [5] to identify proteins that promote single cell resistance to PFTs attack. The function of the selected proteins in PFTs response will then be characterized. This proposal is divided in 3 inter-dependent tasks:

1. Generation of a library of HeLa cells mutagenized by random transposon insertion
2. Selection of cells that resist to death upon PFTs attack
3. Identification of genes/proteins of interest by high-throughput sequencing
References:


Workplace: the work will be developed at Instituto de Investigação e Inovação em Saúde - i3S, Porto, Portugal.

Duration: The BI-Mestre Fellowship will be for 6 months and it is expected to start on October 1st, 2018.

Monthly remuneration: Monthly remuneration is 980 euros accordingly to established remuneration values, paid by bank transfer, preferentially. (http://alfa.fct.mctes.pt/apoios/bolsas/valores)


Selection Committee:
Sandra Sousa, PhD; Didier Cabanes, PhD; and Ana do Vale, PhD

Applications are open from 10th to 21st September 2018.

To apply for the Research Fellowship interested candidates must hold a Master degree and submit the following documents a) Complete and detailed CV; b) Letter of Motivation in English; and c) Copy of Master Certificate, d) Contact Person(s) who may be asked to provide references about the candidate, via the online application system: http://www.ibmc.up.pt/gestaocandidaturas/index.php?codigo=Norte2020HOST31

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