

Research Fellowship BIM (M/F)

Title of the Project: SRECOGNITE – SRCR proteins as microorganism pattern recognition receptors: a wide search for interactions with pathogenic bacteria. (Infect-ERA/0003/2015, project funded by FCT)

Internal Reference: PR251502

A Fellowship is open for recruitment of a pre-doctoral researcher to collaborate in the Project referred above, starting on February 1st, 2016. The fellowship is for 12 months, non-renewable. The monthly allowance is €980.00.

Place of Work: i3S - Instituto de Investigação e Inovação em Saúde, Universidade do Porto, Rua Alfredo Allen, 208

Description: The successful candidate will work in mammalian protein production and purification and study the interaction of bacteria with mammalian cells and proteins.

Candidate profile: The candidate should possess an M.Sc. degree in Biomedical Sciences, Biochemistry, or related areas. We are looking for highly motivated candidates, having an excellent track record and preferentially some experience in either protein production using mammalian expression systems; protein biochemistry; signal transduction; microbiology; working with animal models, being highly desirable that the candidate has an animal license level B; or high resolution microscopy.

It is expected that the student, upon successfully accomplishing the goals of the first year of the project, should apply for an externally funded PhD studentship.

The applications should be received between 8th and 21st January 2016.

Selection method: Proposals must include a letter of motivation, CV, and a letter of reference. Selection of candidates will be based on the above items and also on an interview for the best candidates, with respective weights of 30% (CV), 10% (reference), 10% (motivation) and 50 % (interview).

Applications and supporting documentation are only accepted *via* the online application system:
<http://www.ibmc.up.pt/gestaocandidaturas/index.php?codigo=PR251502>

Selection Committee:

President: Alexandre Carmo (DPhil)

Members: Liliana Oliveira (PhD) and Sandra Sousa (PhD)

The results will be published at the IBMC website and the selected candidate will be informed by email.

The fellowship is regulated by current laws relating to the Statute of Science Research Fellows, namely Law 40/2004 of August 18, and the Regulation of Scientific Research Studentships of the IBMC (www.ibmc.up.pt/fellowships.php).

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Supervisor:

Alexandre Carmo

Work Program:

We here propose to explore and enhance the natural medicinal potential of receptors of the scavenger receptor cysteine-rich superfamily (SRCR-SF) in order to develop therapies against sepsis-inducing infections. SRCR receptors are extracellular proteins expressed at the surface of immune cells or secreted and therefore in circulation, and as such they have the ability to very rapidly contact invasive microbes and enact fast to contain infections. Some SRCR members have been shown to identify pathogen-associated molecular patterns (PAMPs), highly conserved structural components solely expressed on microbes and which are not amenable to mutation without involving loss of viability and/or pathogenicity. This proposal seeks to identify those SRCR that are *bona fide* bacterial PRRs and use them as therapeutic agents in sepsis and other microbe-driven inflammatory diseases.

Namely, we aim to:

- 1) identify SRCR proteins having high-avidity and broad spectrum binding to pathogenic bacteria
- 2) develop and immunophenotype mice deficient for the expression of SRCR proteins involved in the recognition of pathogenic bacteria
- 3) analyze the progression of bacterial infections in SRCR protein-deficient mice and the efficacy of re-expressed mouse and human SRCR proteins as therapeutic agents

