

BOLSA DE INVESTIGAÇÃO (M/F)

Referência: PTDC/SAU-MMI/65407/2006

Título do Projecto: “Host-pathogen interactions: role of the Vip-Gp96 interaction in the virulence of *Listeria monocytogenes*”

Código interno: PR023201

Está aberto concurso para recrutamento de um(a) bolseiro(a) de Investigação para colaborar no projecto acima referido, co-financiado pela Fundação para Ciência e a Tecnologia e pelo programa PTDC.

A bolsa, em regime de exclusividade, terá a duração de 6 meses, eventualmente renovável, com início previsto a 15 de Março de 2010.

O valor mensal da bolsa será de € 745,00, pago por transferência bancária (preferencialmente).

Local de trabalho: Group of Molecular Microbiology, IBMC, Porto.

Programa de trabalho: ver anexo.

Perfil pretendido: Os candidatos devem possuir à data de 15 de Março de 2010 uma Licenciatura em Microbiologia, Biologia, Bioquímica ou áreas afins, e média final de licenciatura igual ou superior a 15 valores. É condição preferencial possuir experiência de investigação em Biologia Cellular.

O prazo para recepção de candidaturas decorre de 23 de Fevereiro até 9 de Março de 2010.

As propostas deverão incluir uma carta de motivação, CV, e cartas de referência e ser enviadas para o e-mail candidaturas@ibmc.up.pt com indicação do código interno (PR023201).

Após avaliação do CV, os candidatos pré-seleccionados poderão ser chamados para entrevista.

A contratação será regida pelo estipulado na legislação em vigor relativamente ao Estatuto de Bolseiro de Investigação Científica, nomeadamente a Lei 40/2004, de 18 Agosto, e o Regulamento de Bolsas de Investigação Científica do IBMC (www.ibmc.up.pt/fellowships.php).

“Host-pathogen interactions: role of the Vip-Gp96 interaction in the virulence of *Listeria monocytogenes*”

Supervisor:

Doutor Didier Cabanes

Project summary:

Listeria monocytogenes is a food borne pathogen that accounts for up to 10% of community-acquired bacterial meningitis in humans, and has one of the highest hospitalization (90%) and mortality (30%) rate among all the food borne infections. Following ingestion of contaminated food by a mammalian host, *L. monocytogenes* has the capacity to cross all bodily barriers such as the intestine, the blood-brain and the fetoplacental barrier. This facultative intracellular bacterium is able to enter and multiply into professional and non-professional phagocytic cells. Several *Listeria* surface proteins play key roles in the interaction with host cells and in the establishment of infection. Vip is a *L. monocytogenes* surface virulence factor that we identified by comparative genomics. We have previously shown that Vip is anchored to the cell wall of *L. monocytogenes* and is required for invasion of mammalian cells. We demonstrated that the cellular receptor of Vip is the heat shock protein Gp96 expressed by target host cells. The Vip-Gp96 interaction is critical for *L. monocytogenes* entry in epithelial cells and for virulence (Cabanes *et al. EMBO Journal*, 2005 24:2827-38).

It is well accepted that during cellular invasion by pathogens the engagement of host cellular receptors leads to the activation of downstream signaling pathways. In particular, the typical Rho GTPases (RhoA, Cdc42 and Rac1) have long been described as activated in response to bacterial invasion and involved in the infectious process of several bacteria. At the contrary, the role of atypical Rho GTPases was until now, poorly studied in the context of cellular invasion.

In order to decipher and characterize the role of the Vip-Gp96 interaction in the establishment and persistence of *L. monocytogenes* infections, we are investigating the cellular signalling events that occur downstream the Vip-Gp96 interaction and induce bacterial uptake. In particular, this project aims to address the role of atypical GTPases in the Gp96 engagement by *Listeria*. The involvement in *Listeria* infection of over 20 atypical GTPases will be tested. Signalling pathways identified downstream Gp96 will be latter dissected using dominant negative approaches and RNAi techniques.