

BOLSA DE INVESTIGAÇÃO (M/F)

Referência: Plurianual Parasite Disease

Título do Projecto: Different sensitivities of Leishmania species to the complement-mediated lysis

Código interno: LA300346

Está aberto concurso para recrutamento de um(a) bolseiro(a) de Investigação para colaborar no projecto acima referido. A bolsa será co-financiada pela Fundação para Ciência e a Tecnologia no âmbito do financiamento Plurianual.

A bolsa, em regime de exclusividade, terá a duração de 3 meses, com início previsto a 15 de Março de 2010.

O valor mensal de cada bolsa será de 745,00€ ou de 980€, dependente das habilitações académicas pago por transferência bancária (preferencialmente).

Local de trabalho: Grupo “Parasite Disease” no IBMC.

Programa de trabalho: ver anexo.

Perfil pretendido:

Os (as) candidatos (as) devem possuir Licenciatura em Ciências Biológicas ou afins. Dá-se preferência a candidatos com formação pós – graduada na área da microbiologia celular e molecular à data de início da bolsa e experiência prévia em Cultura celular, Biologia Molecular e Imunologia.

As propostas deverão incluir uma carta de apresentação, CV, e ser enviadas entre 23 de Fevereiro e 9 de Março 2010 para o e-mail candidaturas@ibmc.up.pt com indicação do código interno (LA300346)

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).

Different sensitivities of *Leishmania* species to the complement-mediated lysis.

Supervisor:

Prof.^a Anabela Cordeiro da Silva

Summary:

BI: *Leishmania* species to the complement-mediated lysis

The leishmaniasis are a group of vector-borne diseases caused by trypanosomatid protozoa of the genus *Leishmania*, which are transmitted to mammalian hosts by phlebotomine sand flies of the genera *Phlebotomus* and *Lutzomyia*, and it manifests mainly in 3 clinical forms; visceral, cutaneous and mucocutaneous leishmaniasis.

The female sand flies ingest amastigotes or macrophage-bearing amastigotes after a blood meal and inside the digestive tract, the amastigotes differentiate into non-infective procyclic promastigotes that multiply and undergo morphological and biochemical transformations (metacyclogenesis process), generating the infective and non-dividing metacyclic promastigotes. It is established that the *in vitro* culture of promastigotes allows the *Leishmania* metacyclogenesis, meaning that promastigotes stationary cultures are highly enriched in metacyclic forms. Contrary to procyclic forms, these forms are usually considered resistant to human complement-mediated lysis.

Since the resistance of *Leishmania* promastigotes to human complement-mediated lysis seems to be associated with parasite infectivity, a study to assess such resistance in three different *Leishmania* species, named *L. infantum*, *L. major* and *L. amazonensis* (representative of visceral, cutaneous and mucocutaneous disease, respectively) was carried out.

First of all, the promastigotes growth curves will be determined so that we access the entry point into stationary phase, of each strain. Using parasites at different days of culture, the resistance to complement-mediated lysis will be determined after incubation with several concentrations of normal human serum at 37°C followed by propidium iodide incorporation and FACS analysis. Some authors hypothesized that few molecules, such as LPG and gp63, protect parasites from complement-induced lyses, we are now studying the expression of Kmp-11 (surface membrane protein associated to LPG) on promastigotes taken at different days of *in vitro* cultures.

These studies will be used to investigate in more details the molecular mechanisms leading to the complement resistance phenotype.