

The UK:Brazil Joint Centre Partnership in leishmaniasis (JCPiL) offers four Postdoctoral Scholarships

- **Funded by FAPESP (2018/14398-0)/** São Paulo/Brazil
- **Working area:** Molecular Biology/Molecular Parasitology/Immunology or Pathogenesis of *Leishmania* and Leishmaniasis
- **Positions are available to develop projects in the laboratories of:** Angela Kaysel Cruz, Dario Zamboni, Hiro Goto or Luiz Tosi
- **Institution:** University of São Paulo
- **Partner Institutions in UK:** University of York and University of Glasgow
- **Deadline for submissions:** October/25/2019

PROJECT: Epigenetic regulation of *Leishmania* gene expression

PRINCIPAL INVESTIGATOR: Angela Kaysel Cruz

A Post-Doctoral Scholarship is available to work on the project "Epigenetic regulation of *Leishmania* gene expression" in the laboratory of molecular parasitology under the supervision of Angela K. Cruz. This project is a partnership between Brazilian (Angela Cruz, FMRP/USP) and UK laboratories (Pegine Walrad and Michael Plevin, Dept of Biology University of York), part of the *UK:Brazil Joint Centre Partnership in leishmaniasis (JCPiL)*, which involves 12 different research groups from UK and Brazil. The postdoctoral fellow will study "*non-coding RNAs putative regulatory role*" at the Brazilian laboratory.

Applicants must have a Ph.D. in Parasitology, Biochemistry, Genetics, Molecular Biology or related fields. Preference will be given to highly motivated individuals with a proven experience on molecular parasitology/microbiology. Applicants should have previous experience with mouse handling and *in vivo* and *in vitro* infection procedures. Candidates should be creative, personally motivated, have excellent oral and written communication skills and a sense of teamwork. It is mandatory that applicants are fluent in English. The selected candidate will receive a Post-Doctoral Fellowship from FAPESP (explicit details are at www.fapesp.br/en/5427)

Summary: *Leishmania* gene expression control occurs mainly at the post-transcriptional level. At the centre of the regulatory complexes are cis- and trans-regulatory elements, mainly represented by mRNA elements (cis-elements) and RNA binding proteins (RBPs) which may well include a thus-far unexplored content of non-coding transcripts (ncRNAs), recently detected in these parasites. Cruz and co-workers have demonstrated that ncRNAs seems to be a common feature of *Leishmania* transcriptomes and hundreds of putative ncRNAs were identified as differentially

expressed (DE) transcripts. The DE *L. braziliensis* ncRNAs and interacting RBPs will be functionally investigated. The post-doctoral fellow will use state of the art technologies for genome editing to generate knockout (KO) of DE ncRNAs in *L. braziliensis* and to endogenously tag these ncRNAs to evaluate phenotypic changes and identify interacting partners. The post-doctoral fellow from the Brazilian laboratory will be engaged in the complementary studies to be developed in the UoY, under the guidance of Michael Plevin and Pegine Walrad and should spend two 6-months periods in the UK.

How to apply: Interested individuals should contact Angela K. Cruz by email (akcruz@fmrp.usp.br using "PostDoc_Leishmania_ncRNAs" as the subject of the email). Documents requested: 1) a letter of intent stating the candidate motivations and why he/she qualify for the position; 2) a short version of Curriculum Vitae containing a list of publications and previous professional experiences; 3) Two letters of recommendation from previous mentors/supervisors of the applicant should be sent to the same email address. Candidates meeting the requirements will be contacted and interviewed (in-person or via Skype).

PROJECT: The inflammasome in response to *L. infantum* infection in mouse models of infection

PRINCIPAL INVESTIGATOR: Dario S. Zamboni

Dr. Dario S. Zamboni (PI, Laboratory of Innate Immunity and Microbial Pathogenesis: <https://lpm.fmrp.usp.br/en/>) is seeking for a highly motivated Post-doctoral individual. The Laboratory is funded by the FAPESP projects and are located in the Department of Cellular and Molecular Biology (Dario S. Zamboni), Ribeirao Preto Medical School from the University of Sao Paulo (FMRP-USP), Ribeirao Preto, Brazil. Sao Paulo Research Foundation – FAPESP, funds the fellowship under the grant: **2018/14398-0**. UK:Brazil Joint Centre Partnership in Leishmaniasis (JCPIL). Successful applicants can be funded for up to 3 years.

Applicants must be exceptionally motivated, innovative and should be able to work independently and with a collaborative team setting. The ideal candidate must have a PhD degree and background in the fields of Cell Biology, Molecular Biology, Biochemistry, Immunology or Infectious Diseases. Prior experience in techniques such as Molecular Biology/Biochemistry/Immunology and/or Imaging are highly recommended.

Summary: Leishmaniasis is a complex infectious disease highly important in tropical and subtropical regions in the world. The main focus of the lab is the investigation of the interactions of intracellular pathogens with host cells, a multidisciplinary area of

research involving Immunology, Cell Biology and Microbiology. The selected candidate will investigate how the immune system senses *Leishmania infantum* parasites and operate to clear infection and how these parasites subvert the host cell functions to replicate intracellularly and cause systemic disease. To achieve these goals, we use modern tools of molecular biology, biochemistry, and genetics.

Requirements: Applicants must have a Ph.D. in Parasitology, Biochemistry, Genetics, Molecular Biology or related fields. Preference will be given to individuals with a proven experience on molecular parasitology/microbiology. Applicants must have previous experience with mouse handling and *in vivo* and *in vitro* infection procedures. Candidates should be creative, personally motivated, have excellent oral and written communication skills and a sense of teamwork. Applicants should be fluent in English. The selected candidate will receive a Post-Doctoral Fellowship from FAPESP (explicit details are at www.fapesp.br/en/5427)

How to apply: Interested individuals should contact Prof. Dario S. Zamboni (dszamboni@fmrp.usp.br) using “**PostDoc_LeishmaniaVirulence**” as the subject of the email. Documents requested: 1) a letter of intent stating the candidate motivations and why he/she qualify for the position; 2) a short version of Curriculum Vitae containing a list of publications and previous professional experiences; 3) Two letters of recommendation from previous mentors/supervisors of the applicant. Candidates meeting the requirements will be contacted and interviewed (in-person or via Skype).

PROJECT: Molecular pathology of leishmaniasis: towards host-directed therapy in leishmaniases

PRINCIPAL INVESTIGATOR: Hiro Goto

A Post-Doctoral Scholarship is available to work on the project " UK:Brazil Joint Centre Partnership in leishmaniasis (JCPiL)". This project is a partnership between Brazilian (Hiro Goto, IMTSP/USP) and UK (Paul Kaye, University of York) laboratories. The postdoctoral fellow will study “**Molecular pathology of leishmaniasis: towards host-directed therapy in leishmaniases**” at the Brazilian laboratory but will also spend periods of time in the UK laboratory.

Summary: The leishmaniases are parasitic diseases caused by one of several species of single cell parasites (*Leishmania*) that are transmitted to humans by the bite of infected sand flies. These diseases affect over 150 million people across 98 countries worldwide. Some forms of leishmaniasis are fatal, whereas other are very stigmatising and affect quality of life. Few drugs are available for patients and no vaccines are currently registered for use in preventing or treating these diseases. Importantly, the drugs that we do have are not universally effective and often have significant side effects. Sometimes patients even in the same geographical area will respond quite differently to therapy. In this proposal, we will use new molecular approaches to perform deep phenotyping on tissue samples collected from patients with various forms of

leishmaniasis to analyse cellular and molecular elements engaged in pathogenesis and treatment response. The aim is to identify host and parasite targets that could be the focus for developing novel therapies.

Objectives: The aim of this project involves understanding the pathophysiology of the diverse forms of leishmaniasis found in Brazil focusing on deep phenotyping of patients, comparing cutaneous and mucosal lesions of patients with American tegumentary leishmaniasis and visceral leishmaniasis. The project will determine the immune profile across the disease spectrum using new multiplex immunohistochemistry and RNA-FISH assays, Nanostring whole tissue transcriptomics and Nanostring Digital Spatial Profiling. The project will deliver new data on immune mechanisms operating in the diverse forms of leishmaniasis, and on the parasite response. The identified pathways could be the focus for developing novel therapies.

Requirements: Applicants must have a Ph.D. in Tropical Medicine, Parasitology, Immunology, Molecular Biology or related fields. Preference will be given to individuals with a proven experience on molecular parasitology/immunopathology. The candidate should have experience with projects involving humans and experimental mouse models and/or in vitro host cell-parasite assays. Proven experience in field work in endemic areas, including epidemiological surveys or follow up of patients, sample collection, samples processing for pathological, immunohistochemistry and molecular biology and diagnostic techniques such as direct research, parasite culture, ELISA, IFI and PCR. The candidate should also demonstrate experience in molecular techniques including DNA/RNA extraction from fresh biopsy and formalin fixed paraffin embedded (FFPE) sections, Real Time PCR, diagnosis based on qPCR to identify the *Leishmania* species and / or training on RNA-FISH assays.. Candidates should be creative, personally motivated, have excellent oral and written communication skills and a sense of teamwork. It is mandatory that applicants are fluent in Portuguese and English. The selected candidate will receive a Post-Doctoral Fellowship from FAPESP (explicit details are at www.fapesp.br/en/5427).

How to apply: Interested individuals should contact Prof. Dra. Hiro Goto by email (hgoto@usp.br using "PostDoc_UK/FAPESP JCPiL" as the subject of the email). Documents requested: a letter of intent and a short version of Curriculum Vitae with a list of publications and previous professional experiences. Also, two letters of recommendation from mentors/supervisors should be sent to the same email address. A part of the shortlisted candidates meeting the requirements will be contacted and interviewed (in-person or via Skype).

PROJECT: Does signaling during DNA replication stress drive genome diversity in *Leishmania*?

PRINCIPAL INVESTIGATOR: Luiz R. O. Tosi

A Post-Doctoral Scholarship is available to work on the project "Does signaling during DNA replication stress drive genome diversity in *Leishmania*?". This project is a

partnership between Brazilian (Luiz Tosi, USP) and British (Richard McCulloch, UoG) laboratories, part of the *UK:Brazil Joint Centre Partnership in Leishmaniasis (JCPiL)*. The postdoctoral fellow will develop the project at the Brazilian laboratory but will also spend periods at the UK laboratory.

Applicants must have a PhD in Parasitology, Biochemistry, Genetics, Molecular Biology or related fields. Preference will be given to individuals with a proven experience on molecular parasitology/microbiology. Candidates should be creative, personally motivated, have excellent oral and written communication skills and a sense of teamwork. It is mandatory that applicants are fluent in English. The selected candidate will receive a Post-Doctoral Fellowship from FAPESP (explicit details are at www.fapesp.br/en/5427)

Summary of the project: The genome of *Leishmania* is characterized by a remarkable plasticity that has been associated with the acquisition of drug resistance and with host adaptation. Here, we will explore if the parasite's signaling of replication 'stress' may underlie genome plasticity and diversity. The analysis of the ATR pathway, which is central to the detection and signaling DNA replication stress and damage, is key to understand the above questions. To date, there has been greater characterization of the *Leishmania* 9-1-1 complex, which is a key element at the early steps of the pathway. The main goal of this proposal is to extend the characterization of the ATR pathway and explore the structure and function of other key components of this orchestrated response.

How to apply: Interested individuals should contact Luiz Tosi by email (luiztosi@fmrp.usp.br using "Postdoc position" as the subject of the email). Documents requested: 1) a letter of intent stating the candidate motivations and why he/she qualify for the position; 2) a short version of Curriculum Vitae containing a list of publications and previous professional experiences; 3) Two letters of recommendation from previous mentors/supervisors of the applicant should be sent to the same email address. Candidates meeting the requirements will be contacted and interviewed (in-person or via Skype).