

***Leishmania* attachment in the sand fly vector**

3 Year, full-time funded PhD Studentship in Parasitology

Oxford Brookes University

Department of Biological and Medical Sciences

Director of Studies: Dr Jack Sunter

Background: Leishmaniasis is a devastating disease that affects millions of people around the world. The disease is caused by the *Leishmania* parasite which is transmitted through the bite of the sand fly; therefore, understanding the developmental cycle of the *Leishmania* parasite in the sand fly is critical to controlling the transmission of this disease. *Leishmania* is a unicellular flagellate parasite and in the sand fly the parasite has two forms - free swimming or attached. The parasite attaches to the lining of the gut in the sand fly through its flagellum, forming a complex structure call an attachment plaque. Attachment is central to the biology of Leishmania yet we understand very little about the molecular underpinnings of this process.

Aim: This exciting project using cutting-edge molecular biology and imaging techniques will unravel the regulatory pathway that controls differentiation from a free swimming to attached parasite. We will mine a comparative proteomic screen to identify proteins upregulated in attached parasites. Then using CRISPR/Cas9 genome modification we generate *Leishmania* parasites expressing these candidate proteins endogenously tagged with fluorescent proteins. Advanced fluorescence light microscopy will then be used to identify those with a role in differentiation. The function of these proteins and others identified by bioinformatics will be analysed by generating deletion mutants using CRISPR approaches in combination with cutting-edge light microscopy and 3D electron microscopy approaches to define the points at which the mutants fail during differentiation.

If you are interested in this studentship contact Dr Jack Sunter - jsunter@brookes.ac.uk

Eligibility: Home, EU and International applicants

Closing date: 3 February 2022

Start Date: September 2022

Bursary equivalent to UKRI national minimum stipend plus fees (2021/22 bursary rate is £15,609)

University Fees and Bench fees will be met by the University for the 3 years of the funded Studentship.

<https://www.findaphd.com/phds/project/leishmania-attachment-in-the-sand-fly-vector/?p140428>

How to apply: Applicants should email hlsapplications@brookes.ac.uk to request an application form.