

# IRCSET PhD applicants sought for scholarships in evolutionary genetics and parasite epidemiology

How recombination and hybridisation drive disease outbreaks in tropical parasites



Candidates are invited to apply with the Bioinformatics Unit at National University of Ireland in Galway for the current IRCSET EMBARK PhD studentship call. IRCSET are offering support to successful candidates for travel, publication costs, college fees (including non-EU students) and a personal stipend for 4 years. This project will investigate the roles of inbreeding and outcrossing in causing epidemics of *Leishmania* parasites and their links to emerging drug resistance.

Leishmaniasis is a devastating neglected disease, transmitted by sandflies that kills 150 thousand people annually and represents a major disease burden in tropical regions. The combination of new epidemics and accelerating resistance to treatment makes this superbug a major threat to public health. Hybridisation of diverse types is causing new clinical challenges and recent work provides a framework for examining parasites taken straight from infected patients. The successful candidate will examine the genetic events associated with shifts from fast-evolving high-recombining endemicity to non-recombining clonal epidemicity. In particular, this position represents an exciting opportunity to explore relationships between linkage, intra-host diversity and transmission between hosts.

This project uses bioinformatics to develop insights into evolutionary genetics. Consequently, the applicant will have a keen interest in developing informatics and programming skills to answer key research questions, and aspire to learn more about high-throughput population genomics in an epidemiological context. Applicants should have, or be expected by current supervisors to attain, a relevant first or high second class undergraduate degree as well as evidence of their aptitude to implement novel experimental ideas. The applicant will have experience in either or both of bioinformatics and evolutionary biology, and an appreciation for the major challenges emerging in the genomics of infectious disease.

This collaborative project builds on work completed at the Wellcome Trust Sanger Institute and will work with members of their Parasite Genomics team. The successful applicant will also interact with partners in Glasgow, Antwerp, Berlin, Nepal and India that are profiling the biological characteristics of these parasites using multiple complementary approaches. This project will be supervised at NUI Galway by Dr. Tim Downing with Prof. Cathal Seoighe as co-supervisor. The Bioinformatics Unit is located on the main NUI Galway campus in the middle of the lively city that is Ireland's cultural heart and fastest-growing city.

Interested candidates should make contact with the project supervisor as soon as possible by e-mailing their CV and details on their research interests and current work no later than Wed the 1<sup>st</sup> of February to Dr. Tim Downing at the Bioinformatics Unit, School of Maths, NUI Galway (downingtim@gmail.com).

For more information please see: <http://www.ircset.ie/tabid/63/default.aspx>; [www.nuigalway.ie/courses/research-postgraduate-programmes/bioinformatics.html](http://www.nuigalway.ie/courses/research-postgraduate-programmes/bioinformatics.html); [www.sanger.ac.uk/about/press/2011/111027.html](http://www.sanger.ac.uk/about/press/2011/111027.html); Downing et al, Genome Research 2011; and Downing et al, Infection, Genetics and Evolution 2012.