Evolution of genome composition in a social microbe

Lead Supervisor: Prof Jason Wolf, Department of Biology & Biochemistry

Project description:

The advent of low-cost DNA sequencing unleashed a revolution that dramatically changed our understanding of how genes and genomes evolve. One of the most surprising findings emerging from this revolution is that genomes can be remarkably variable across individuals, populations, and environments. This contrasts with the classic perspective that assumes a species can be characterised by a static list of genes in the 'reference' genome, which is typically derived by sequencing a single individual. However, this perspective has been upended by large-scale genomic data, which have allowed us to compare genomes to reveal the fact that genomes often vary in gene content and organisation. In bacteria, this intraspecific genomic diversity can reflect horizontal gene movement across lineages, but in eukaryotes it likely reflects more complex processes governing gene birth and decay. To understand the processes driving genome diversity we will use a eukaryotic social microbe, which has a complex life-history and variable ecology. To achieve this goal, we will combine genome sequences from broad geographic samples with detailed profiles of gene expression and trait variation.

Candidate:

Applicants should hold, or expect to receive, a First Class or high Upper Second Class UK Honours degree (or the equivalent qualification gained outside the UK) in a relevant subject. A master's level qualification would also be advantageous.

Applications:

Informal enquiries should be directed to Prof Jason Wolf, jbw22@bath.ac.uk.

Formal applications should be made via the University of Bath's online application form.

On the application form, please ensure that you quote 'Evolution Education Trust' in the Finance section and the supervisor's name and project title in the 'Your research interests' section. Should you wish to be considered for more than project, quote the projects in order of preference and upload a separate personal statement relevant to each one.

Please see our Doctoral College website for more information on how to apply for a PhD at Bath.

Application deadline: 30 April 2019.

Interviews will take place in Bath on 14 June 2019.

Anticipated start date: 30 September 2019.