

Department of Veterinary Medicine

Available PhD Project:

Supervisor: Professor Julian Parkhill

Supervisor profile page: [Professor Julian Parkhill FRS FMedSci | Department of Veterinary Medicine \(cam.ac.uk\)](#)

Project Title: Mutational signatures in bacteria

Description:

Different mutational processes leave signatures in the variants generated over time in bacterial genomes. These processes can include chemical or environmental mutagens, as well as intrinsic metabolic processes and DNA repair pathways. Separating out these mutation signatures, and applying the results to phylogenetic trees, allows the exploration of which processes have been active over which time periods in the history of particular bacterial lineages. This in turn should allow inferences about which environments the lineage has been present in.

The student will explore these processes using new bioinformatic tools generated in the supervisor's group. They will learn about the application of phylogenetic processes to bacterial genomes. While this will be primarily computer-based, there could be the opportunity to test some of the signatures experimentally.

For further information about the project, please contact Prof Julian Parkhill: jp369@cam.ac.uk

Funding: Not funded - applicants are invited to apply before the Cambridge University Postgraduate Funding competition deadline in order to be nominated for suitable scholarships.

How to apply: Contact the Supervisor to discuss the project before submitting an official application.

More details on the application process here:

[How to apply — Department of Veterinary Medicine \(cam.ac.uk\)](#)