

Department of Veterinary Medicine

Available PhD Project:

Supervisor: Professor Elizabeth Murchison

Supervisor profile page: <https://www.tcg.vet.cam.ac.uk/directory/elizabeth-murchison>

Project Title: Evolution of transmissible cancers in Tasmanian devils

Description: Tasmanian devils are marsupial carnivores endemic to the Australian island of Tasmania. This species is affected by two transmissible cancers, known as devil facial tumour 1 (DFT1) and devil facial tumour 2 (DFT2). These cancers are contagious clonal cell lineages that spread between hosts by the transfer of living cancer cells during biting. Although allogeneic grafts, these cancers escape the immune system. These diseases are fatal to their hosts, and pose a significant threat to the species.

This PhD project will investigate the evolution and host interactions of DFT1 and DFT2. Single-cell RNAseq data and histological analysis will be used to characterise host cell contributions to the DFT1 and DFT2 tumour microenvironments. We will additionally analyse tumour genome data from a large panel of DFT1 and DFT2 tumours, together with matched bulk RNAseq, in order to understand how genetic variation contributes to changes in gene expression within the DFT1 and DFT2 lineages. The project will provide significant new insights into the evolution of transmissible cancers.

The project will primarily involve computational analysis of genome and transcriptome data.

For further information about the project, please contact Prof Elizabeth Murchison, epm27@cam.ac.uk

Funding: This project is 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 \(cam.ac.uk\)](#)