



UNIVERSITY OF
CAMBRIDGE

Department of Oncology

Early Cancer Institute Michael Cowan Non-Clinical PhD Studentship – Understanding the role of microRNAs (miRNAs) in the progression of clonal haematopoiesis to blood cancer (MDS+/-AML) (Fixed Term)

We invite applications from UK students for this 3.5 year fully funded non-clinical studentship based in the Early Cancer Institute, Department of Oncology, University of Cambridge, UK.

Project details

Acute myeloid leukaemia (AML) is an aggressive blood cancer which claims the lives of 70-80% of patients within 5 years of diagnosis. AML typically develops via serial acquisition and clonal expansion of 'driver' mutations ('clonal haematopoiesis'); a process that starts many years before diagnosis. In some individuals AML can develop via myelodysplastic syndrome (MDS), a route associated with particularly poor prognosis, with median survival of only ~7 months. Because the 'seeds' of MDS and AML are often 'sowed' years before diagnosis, much research in recent years has focused on trying to identify individuals at high risk of MDS and/or AML, with the hope that we might be able to therapeutically intercept the disease before it fully develops. Current risk stratification relies on clinical parameters and the identification of 'high-risk' genetic mutations in an individual's blood. However, 'high-risk' mutations can also be found in the blood of healthy individuals who never progress to MDS/AML, and there are some individuals who develop MDS/AML despite seemingly having no pre-leukaemic mutations detectable in their blood ~5 years prior to diagnosis. Additional 'high-risk' biomarkers are therefore needed if we want to improve our ability to develop predictive models of MDS/AML risk.

MicroRNAs (miRNAs) are small, non-coding RNAs that play crucial roles in the regulation of gene expression and impact various cellular processes including self-renewal, differentiation, proliferation and apoptosis. Through their effects on gene regulation and cellular pathways, miRNAs can drive clonal expansion in the absence of somatic mutations. Much research has established the roles of specific miRNAs in MDS and AML, but our understanding of how miRNA expression evolves during disease development/ evolution is lacking. The overall aim of the PhD project is to harness the power of longitudinal blood samples to gain a better understanding of the miRNA changes associated with progression of clonal haematopoiesis to MDS +/- AML. Understanding this will be invaluable for developing early detection tools and may provide insights into novel preventative therapeutic targets.

Funding

This studentship commences in October 2025. It provides a maintenance stipend of £21,500 per annum for 3.5 years, tuition fees at the **UK rate**. In addition, £1225 for personal development and overseas travel and £5000 for research consumables is provided per annum for the first 3 years.

Candidate

We are looking for a highly motivated and enthusiastic individual capable of thinking and working independently. Applicants should have or shortly expect to obtain a minimum of a good upper second-class honours degree from a UK university, or an equivalent standard from an overseas university, in a relevant discipline.

Eligibility

The funding for this studentship covers students with UK Home tuition fee status only. For more information on Home tuition fee status please visit the UKCISA website.

How to apply

Application closing date: 16th February 2025.

Before applying please ensure that you meet, or expect to meet our [PhD entrance requirements](#), then submit a full PhD application via the [University of Cambridge Postgraduate Applicant Portal](#).

When making your application, you should:

- Select to commence study in Michaelmas term 2025 (October 2025).
- add 'Dr Caroline Watson' and 'RD44501' to the 'Proposed research title' section.
- Check **all** supporting documents (CV, References and Transcripts, if available) are uploaded by the studentship closing date (16th February 2025). Please note, it is the applicant's responsibility to ensure all supporting documents are submitted on time, failure to do so will result in rejection of your application.

Prospective candidates are encouraged to contact Dr Caroline Watson at: cw672@cam.ac.uk to discuss this project in greater detail.

Further information about the PhD in Oncology course and how to apply can be found [here](#) and full information about making an application to the University of Cambridge can be found on the University's [Postgraduate Study website](#).

Interview and selection process

Applicants will be informed of the outcome of their application via the University of Cambridge Postgraduate Applicant Portal by **March 2025**.

Shortlisted applicants will be invited to attend an online interview in **March 2025**. You will be interviewed by a panel of Principal Investigators from the Early Cancer Institute. Applicants will be notified of the outcome of their interview after completion of all the interviews. The successful applicant will receive a formal offer letter by **April 2025**.

For general enquiries about these PhD studentships or the application process, please contact the Department of Oncology Postgraduate Education Team at: postgradadmin@oncology.cam.ac.uk.

Please quote reference RD44501 in any correspondence about this vacancy.

The University actively supports equality, diversity and inclusion and encourages applications from all sections of society.

The University has a responsibility to ensure that all employees are eligible to live and work in the UK.

Student support and training

As a Postgraduate Student with the Department of Oncology, University of Cambridge, you will have access to a wide range of training opportunities and benefit from close supervision provided by a Principal Supervisor who oversees your research project and an Adviser who provides additional support. Our Postgraduate Student Administrator acts as the first point of contact for any student with a query or difficulty that is not directly related to their scientific work. All student matters in the department are overseen by our Director of Postgraduate Education and the Cancer Biology Postgraduate Education Committee. There are no taught elements or examined coursework in the PhD in Oncology course, but students are encouraged to attend the wide variety of lectures and training courses available across the department and wider University. This includes a centrally run Statistics course and the University Core Skills Training Programme, which covers sessions on Time Management, Presentation and Performance and Scientific Writing. Our Postgraduate Students are automatically made members of the [University's Postgraduate School of Life Sciences](#), which also offers a wide variety of core skills and professional development training. We also expect that our Postgraduate Students register as members of the [Cancer Research UK Cambridge Centre](#).