

BBSRC DPhil Studentship in “Cross-vector comparison in understanding the innate-adaptive pathways underpinning viral vector induced T cell responses”

The Jenner Institute, NDM, University of Oxford in collaboration with Oxford Biomedica

Application Deadline: Friday 1st December 2023 (12:00 midday GMT)

Project Start Date: 13th October 2024

Supervisors

Primary Supervisor: Anita Milicic

Secondary Supervisors: Jan Rehwinkel, Tomas Hanke

About the Project

Vaccine modalities that induce potent T cell responses are needed to combat existing and emerging intracellular pathogens (such as HIV), and for cancer prevention which is likely to become a future healthcare priority. Viral vectored vaccines are known to induce potent and more durable CD8 T cell responses compared to other modalities: measles vaccine (a paramyxovirus) is a rare example of a vaccine that can induce life-long immunity. Several viral vectors have been deployed in the clinic in recent years for vaccination against infectious diseases or in cancer therapy, such as adenovirus (AdV), modified vaccinia Ankara (MVA), lentiviruses and a respiratory paramyxovirus parainfluenza type 5 (PIV5). However, the early mechanisms of immune response induction by these vectors remain unknown.

Understanding how initial viral vector signalling relates to lasting immunity is critical for the further development of vaccines that elicit effective and durable responses in both prophylactic and therapeutic applications. In this project, the immune cell tropism, kinetics of innate stimulation and specific signalling pathways triggered by different vectors will be characterised in detail. The findings will be correlated with pre-clinical studies of vector-induced adaptive immunity and the ability to induce strong and durable CD8 T cell responses. Additionally, we will employ our new ex vivo human lymph node (LN) model system to assess the early pro-inflammatory response to the vectors in fresh, architecturally preserved, human lymphatic tissue.

About the BBSRC Collaborative Training Partnership in Advanced Bioscience of Viral Products (ABViP)

This PhD studentship is part of the Biotechnology and Biological Sciences Research Council (BBSRC) Collaborative Training Partnership (CTP) in Advanced Bioscience of Viral Products (ABViP). The ABViP-CTP is a comprehensive, multidisciplinary training programme designed to deliver the next generation of bioscience leaders who will advance research on the underpinning bioscience of viral products for future gene therapies and vaccines. Led by Oxford Biomedica (OXB) and involving both UCL and the University of Oxford, CTP students will have access to a wide-ranging portfolio of training opportunities at the Partner sites including taught courses and case studies designed to complement the doctoral research. Students trained through the ABViP CTP will gain a holistic insight into the research and development activities required to develop the medicines of the future, with the ability to see the world of medicines development through both an academic and industrial lens. For more information about the ABViP CTP, please click on the following [link](#).

A webinar will be held on Thursday 9th November 2023 18.30 – 18.30 (GMT) which will introduce the ABViP Programme, and each of the projects and provides an opportunity to have your questions answered. To register for this webinar, please [click here](#).

About the Department

The Jenner Institute (<https://www.jenner.ac.uk>) is an established developer of innovative vaccines with two notable licenced products: Adenovirus-vectored vaccine against SARS-CoV-2 (the “Astra-Zeneca COVID-19 vaccine”) and most recently a vaccine against malaria.

The Institute has a thriving and closely-knit community of more than 20 DPhil students, with the project supervisor (Dr Anita Milicic) as the Director of Graduate Studies (DGS). Monthly meetings between the DGS and students ensure student integration and general well-being, and the exchange of ideas in an informal setting. Broader academic skill training will be enabled through a wide variety of courses at Oxford. A senior scientist within the group will provide close laboratory supervision, training, and day-to-day mentorship. The student will have weekly meetings with the primary supervisor and frequent meetings with the collaborators and co-supervisors on the project.

The student will benefit from a rich offering of seminars at Oxford, as well as Jenner Institute scientific meetings, and encouraged to engage fully in the ABViP cohort programme.

About Oxford Biomedica

Oxford Biomedica (OXB) is a pioneer of gene and cell therapy with a leading position in viral vector research and bioprocessing. Our mission is to deliver life-changing gene therapies to patients. OXB is an innovation and science-focused company which has developed a leading platform of novel technologies and capabilities. The OXB team provide design, development, bioprocessing and analytical development for gene-based medicines based on viral vectors, both for in-house products and for those developed with partner organisations. OXB has contract development and manufacturing organisation (CDMO) capabilities that support the development of novel gene-based medicines through all phases of clinical development to commercial manufacture. At Oxford Biomedica, we drive credible science to realise incredible results.

Entry requirements

As a minimum, applicants should hold or be predicted to achieve the following UK qualifications or their equivalent: a first-class or strong upper second-class undergraduate degree with honours in a relevant discipline such as biology, biochemistry, or medicine, although those who have not achieved this level of qualification will be considered if they show strong performance in a master’s course. A previous master’s degree is not required.

We particularly welcome applicants from disadvantaged backgrounds, or via an unconventional career path. If you’re unclear as to whether you are eligible, we would encourage you to apply regardless. You can also contact the project supervisor (see details below). To learn more about the policies in relation to diversity and inclusion at the University of Oxford, please [click here](#) for further information.

Informal enquiries should be addressed to Dr Anita Milicic (E-mail anita.milicic@ndm.ox.ac.uk).

Funding

This BBSRC CTP ABViP Studentship is available to UK and Overseas (including EU) students. Full maintenance (stipend & fees) is available to the UK and Overseas students for the duration of the four-year PhD. Note that up to a maximum of one fully funded studentship allocation is available for Overseas students across the Department. The annual tax-free stipend for the PhD studentship is £20,622 (estimated), which includes a top-up from Oxford Biomedica.

English language requirements

If your education has not been conducted in the English language, you will be expected to demonstrate evidence of an adequate level of English proficiency. The English language level for this programme is: **Standard**

Deadline and Application Process

The deadline for submission is 12:00 midday on Friday 1st December 2023.

To apply for this PhD studentship, you must submit a formal application to the DPhil in Advanced Bioscience of Viral Products course (Course code RD_NG1) through the UOXFs application portal by the above deadline. More information about the course and application process is available here:

<https://www.ox.ac.uk/admissions/graduate/courses/dphil-advanced-bioscience-of-viral-products>