

## **BBSRC DPhil Studentship in Utilising a systems approach to advance our understanding of immune responses to viral vectors [Project 2023/05]**

*Department of Paediatrics, University of Oxford in collaboration with Oxford Biomedica*

**Application Deadline: Friday 9<sup>th</sup> December 2022 (12:00 midday GMT)**

**Project Start Date: October 2023**

### **Supervisors**

Primary Supervisor: Dr Daniel O'Connor

Secondary Supervisors: Prof Carlo Rinaldi and Prof Teresa Lambe

### **About the Project**

Viral vectors have been used successfully as vaccines and gene-therapies. Viral vector vaccines had a profound impact on the course of the COVID-19 pandemic, with estimates of over 6.5 million lives saved in 2021 alone due to viral vector-based vaccines. Moreover, viral vector gene therapies have drastically improved both the duration and quality of life of patients with hereditary diseases. This project aims to utilise contemporary bioinformatic and system biology approaches to glean a high-resolution view of immune responses to viral vectors. The immune response to viral vectors is complex and depending on the purpose of therapy the desired immune responses may be highly disparate (i.e., immunostimulatory for vaccines versus immune evasion for gene therapy). Conversely, common challenges are faced in the development of both viral vector vaccines and gene therapies such as anti-vector immunity, packaging capabilities, transduction efficacy, tissue tropism, dosing, and safety. To optimise the use of viral vectors, a better understanding of their interaction with the immune systems is required. Recent technological advances, in the areas of genomics, epigenomics, transcriptomics and proteomics, offer the opportunity to reveal the immunology underlying responses to viral vectors at an unprecedented resolution. These data could revolutionize the way viral vector-based therapies are used.

### **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 16th November 2022 17.30 – 18.30 (GMT) which will introduce the ABViP Programme, introduce each of the projects and provide an opportunity to have your questions answered.

### **About the Department**

The Department of Paediatrics is a world leader in child health research and hosts internationally renowned research programmes in drug development, gastroenterology, haematology, HIV, immunology, neuroimaging, neuromuscular diseases and vaccinology. Our work spans from early proof-of concept fundamental science, all the way up to its application in clinical settings. We continue to shape the landscape of medical science through positively impacting the lives of millions of children from our global research programmes, academic resources, and commitment to success. Our broad research base positions the department in a pivotal role and subsequently

a world leader in child health. With research facilities in the UK and abroad, we work on a global scale, building a paediatric network in the medical science community. The Department of Paediatrics holds a silver Athena Swan award to recognise advancement of gender equality.

### 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 focussed 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 Daniel O'Connor (E-mail [Daniel.oconnor@paediatrics.ox.ac.uk](mailto:Daniel.oconnor@paediatrics.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 £17,668 (estimated).

### 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 9<sup>th</sup> December 2022

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 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>