

BBSRC DPhil Studentship in Properties of adenovirus vectors mediating mucosal immunogenicity [Project 2023/01]

Jenner Institute, Nuffield Department of Medicine, University of Oxford in collaboration with Oxford Biomedica

Application Deadline: Friday 9th December 2022 (12:00 midday GMT)

Project Start Date: October 2023

Supervisors

Primary Supervisor: Alexander (Sandy) Douglas

Secondary Supervisors: Kerry Fisher

About the Project

Mucosal vaccination could revolutionise control of globally important infectious disease by improving ease & acceptability of delivery and focussing immune response to mucosal surfaces, where most pathogens enter the body. The technical challenge is to deliver vaccine antigens to respiratory or gastrointestinal (GI) lymphnodes, through acidic and enzyme-rich secretions of the stomach. As mucosally-tropic viruses which have been used successfully for injected vaccines, adenovirus vectors are well-suited to this challenge, but understanding of mucosal infection by adenoviruses is limited. It is not currently possible to predict reliably which among the many adenovirus serotypes would perform best as nasal or oral vaccines.

Theolytics, a spinout company from the University's Department of Oncology, has assembled an extensive library containing all known human serotypes of adenovirus and a very large number of variants. This studentship will identify which variants are best suited for mucosal delivery. This can be achieved by sequencing genomes that successfully reach target cells of interest. Promising candidates will then be converted into vectors to deliver a chosen antigen, and evaluated for immunogenicity. The project will also use the sequences of the pool of vectors which successfully reach the target tissues to seek general rules about the characteristics of vectors suitable for mucosal delivery and avoidance of enzymatic degradation. This could provide information useful in other biopharmaceutical areas, protein engineering and basic biology.

The student working on this interdisciplinary project will gain experience from basic virology and immunology, all the way through to sequencing, bioinformatics and vaccine production.

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 Jenner Institute is a global leader in vaccine development, including having developed the Oxford-AstraZeneca COVID-19 vaccine. The Institute's position on the University of Oxford's Old Road Campus places it within the leading infection and immunity research community in Europe and hence provides an outstanding academic environment. The studentship will provide exposure to a spectrum of vaccine development activity, encompassing multiple target organisms and spanning from pre-clinical discovery to manufacturing and clinical trials.

The student will also benefit from working in collaboration with Theolytics, a small biotech company of which Prof Fisher is a co-founder.

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 Sandy Douglas (sandy.douglas@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 £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 9th 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>