



Industrial CASE Studentship Advertisement – 2023-24

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Project Title:	Structure and native functionality of the glycoproteins presented by zoonotic bornaviruses

Brief description of project:

Bornaviruses constitute a group of under-characterised animal-borne RNA viruses that utilise a range of mammalian hosts as reservoirs. In recent years, an increasing number of bornavirus spillover events have occurred, causing hospitalisations and fatalities. The growing biomedical impact of bornaviruses, combined with the absence of effective therapeutics, underscores the importance of characterising these understudied emerging pathogens. The bornavirus glycoprotein (BorV-G) is responsible for facilitating host cell entry and is a primary target for vaccine and antiviral development. However, the lack of detailed information about BorV-G structure, receptor usage, and antigenicity limits our understanding of the molecular determinants of bornaviral host tropism and the sites of vulnerability targeted by neutralising antibodies. In this doctoral research project, the student will employ an integrative structural and functional approach to elucidate molecular-level details of BorV-G architecture and host interactions. The student will receive comprehensive training in state-of-the-art techniques in structural and molecular biology including mammalian protein production, *in vitro* assays, X-ray crystallography, cryo-EM, cryo-CLEM, cryo-ET, and subtomogram averaging. This work will reveal molecular-level insights into BorV-G-driven pathobiology.

Attributes of suitable applicants:

(1) Proven enthusiasm for studying structural biology, biophysics, and virology. Laboratory research or working experience in a relevant field is desirable.



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(2) A first or upper second-class undergraduate degree in the subject areas of biochemistry, chemistry, physics, biology, immunology, or virology. A master's degree in a relevant field is desirable but not a prerequisite for consideration.

If your degree is not from the UK, visit the [International Qualifications](#) webpage for the minimum entry requirements.

(3) Strong oral and written communication skills in English. If your first language is not English, you may need to provide evidence that you meet this [requirement](#).

(4) Ability to work both independently and in a highly collaborative environment.

(5) Well organised and highly motivated.

(6) Experience handling proteins and performing cryo-EM, X-ray crystallography, and/or NMR is desirable.

Funding notes:

This project is funded for four years by the Biotechnology and Biological Sciences Research Council UKRI-BBSRC. UKRI-BBSRC eligibility criteria apply (<https://www.ukri.org/files/funding/ukri-training-grant-terms-and-conditions-guidance-pdf/>). Successful students will receive a stipend of no less than the standard UKRI stipend rate, currently set at £18,622 for the academic year 2023 to 2024 (the rates for subsequent academic years have not been published), plus a £2,000 per annum stipend top-up.

This project is supported through the Oxford Interdisciplinary Bioscience Doctoral Training Partnership (DTP) studentship programme. The student recruited to this project will join a cohort of students enrolled in the DTP's interdisciplinary training programme and will participate in the training and networking opportunities available through the DTP. For further details, please visit www.biodtp.ox.ac.uk. The DTP and its associated partner organisations aim to create a community that is innovative, inclusive and collaborative, in which everyone feels valued, respected, and supported, and we encourage applications from a diverse range of qualified applicants.