OXFORD INTERDISCIPLINARY BIOSCIENCE
Doctoral Training Partnership

Industrial CASE Studentship Advertisement – 2023-24

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Project Title:	Understanding the Mechanism of Action of Novel K^+ Channel Inhibitors

Brief description of project:

This DPhil (PhD) studentship presents an excellent opportunity for world-class graduate training in the area of ion channel structural biology, biophysics, biochemistry, and drug discovery. Overall, membrane protein structure, biophysics and function form a major strategic research theme at the University of Oxford, and so provides an exciting and stimulating environment for research students in these areas.

The student will be involved in an exciting multidisciplinary project aiming to determine the basic structural and molecular mechanisms of a range of novel inhibitors of the THIK1 K^+ channel. These have been developed by our industrial partner, Cerevance, a private drug discovery and development company based in Cambridge, UK. They are focused on developing novel therapeutics for central nervous system (CNS) diseases, especially Alzheimer's Disease and other neurodegenerative disorders such as Amyotrophic Lateral Sclerosis (ALS).

The project will provide an opportunity to learn from a range of experimental techniques (membrane protein expression and purification, nanobody production, and structural biology techniques including x-ray crystallography and cryo electron microscopy), as well as methods involved in the functional analysis of channel regulation by small molecules (ion channel electrophysiology, membrane biophysics, and pharmacology), and/or computational and molecular simulation approaches to the study of channel function. It will also allow the successful candidate to gain direct experience of working with a major pharmaceutical company.

The student will be based in the new Kavli Institute for Nanoscience Discovery in Oxford, but will also interact closely with the industrial supervisor at Cerevance who can provide access to a variety of novel tools, expertise and resources not normally available in a standard academic environment. It is also expected that the student will spend periods on

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secondment with Cerevance during the course of this project. Importantly, the student will also have the opportunity to benefit from the training and networking opportunities available as part of the Interdisciplinary Bioscience DTP.

Attributes of suitable applicants:

The student will be expected to have a first class or upper second-class degree (or equivalent) in a relevant discipline, and to have a genuine enthusiasm and ability for working in a highly collaborative and multidisciplinary research environment.

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 per year, which will usually be supplemented by the industrial partner

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.