OXFORD INTERDISCIPLINARY BIOSCIENCE
Doctoral Training Partnership

Industrial CASE Studentship Advertisement 2022-23

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Project Title: **The Evotron: an experimental evolution system for investigating and predicting agrochemical resistance**

Brief description of project:

The overall aim of this work is to establish a novel experimental paradigm for investigating and predicting the evolution of agrochemical resistance, which currently poses a significant threat to global food security. The experimental organism of choice for this work is the nematode *C. elegans*, which possesses the crucial life-history traits required for experimental evolution work (e.g 3-day generation time), combined with well-characterised agrochemical resistance biology, and an excellent genetic toolkit. It is impossible to imagine any other relevant, multicellular organism in which this could be done as successfully. Experimental evolution in *C. elegans* is well established but has yet to be applied in any significant way to agrochemical resistance.

The project will yield new biological insights, as well as optimized, validated and credible models to better predict resistance evolution, ultimately leading to empirical support for real, in-field resistance management strategies that will impact agricultural practice. In terms of evolutionary theory, the role of variable environments and contrasting selection pressures on the evolution of organisms is relatively poorly understood, let alone on the evolution of resistance, thus this project offers substantial scope for pure as well as applied evolutionary insights. Overall, the approach we propose is novel and offers an outstanding training and research opportunity for a PhD student in a unique collaboration between academia and industry.

Attributes of suitable applicants:

Interest and enthusiasm for evolutionary biology, genetics, *C. elegans* biology, crop science, and/or industrial collaboration. Willingness to learn new approaches and to innovate in a new area of research, and to work as a key part of an interdisciplinary team.

How to apply:

Applicants should first contact the lead supervisor to discuss whether their research interests are a suitable fit for the project, then apply online via this webpage Interdisciplinary Bioscience (BBSRC Doctoral Training Partnership) | University of Oxford. Please note that we are implementing measures to limit implicit bias in the application process and taking positive action to support students from groups that are under-represented in bioscience. Applicants therefore need to follow the instructions available on the following webpage when preparing an application: Pilot assessment procedure: MPLS doctoral training courses | University of Oxford.

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Funding notes:

Syngenta will provide an uplift to the student stipend of £2.5k p.a, in addition to meeting all costs associated with the 12-week placement, visits from the academic supervisory team and attendance of the academic supervisory team at the annual collaborators day.

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 £15,609 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.