

PROJECT TITLE: Roles for WOX genes in the evolution of plant life histories?

Project Science Theme: Evolution and Biodiversity

Project keywords: Plant evolution, biodiversity, WOX genes.

Lead Institution: Bristol

Lead Supervisor: Jill Harrison, Bristol, Biological Sciences

Co-Supervisor: James Clark, Bath, Milner Centre for Evolution

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Project aims and methods:

The origin and diversification of land plants fundamentally changed Earth's energy budget, biogeochemical cycles and ecosystems. This project aims to determine how coding and non-coding sequences in plant genomes led to an explosive radiation in biodiversity as plants conquered land. Whilst variation in shoot and root architecture in flowering plants reflects WOX gene activity, ancient gene duplications generated divergent WOX functions in reproduction and life cycle progression in distantly related mosses. This project aims to identify the genetic basis of plant life history diversity by reconstructing densely sampled WOX gene, protein, and conserved non-coding sequence phylogenies and testing the functional significance of sequence divergences in plants. The student will co-develop the core research questions and methodology of the project including sampling strategies and technical approaches (WOX gene family phylogenies, non-coding sequence phylogenies and wet lab work). They will work in two teams using complementary strategies to identify genetic changes enabling plants' colonisation of land and as part of a wider plant development grouping with 5 PIs. The project will provide training in molecular phylogenetics, molecular analyses of plant gene function, data collection and analysis, statistics, research dissemination and wider science communication.

Useful recruitment links:

For information relating to the research project please contact the lead Supervisor via:
Jill.Harrison@bristol.ac.uk

Bristol NERC GW4+ DTP Prospectus:

<https://www.bristol.ac.uk/study/postgraduate/research/great-western-four-doctoral-training-partnership-nerc/>

How to apply to the University of Bristol:

<http://www.bristol.ac.uk/study/postgraduate/apply/>

The application deadline is Thursday 8 January 2026 at 2359 GMT