Mining Fungal Genomes for the Next Antibiotic

Main supervisor: Dr Andy Bailey, School of Biological Sciences, University of Bristol
Co-supervisors: Prof Gary Foster, School of Biological Sciences, University of Bristol and Prof Chris Willis, School of Chemistry, University of Bristol.
Host institution: University of Bristol

Project description:
Fungi are famed for making small molecule secondary metabolites, however genome sequencing has revealed that there are far more gene clusters in a typical fungal genome than has been realised from chemical screening. This suggests that there is a plethora of chemical entities yet to be discovered. Given that the metabolic pathways have been maintained in the face of natural selection pressures, it is likely that these pathways will make bioactive molecules, some of which are likely to have antibiotic properties. You will join a team working to develop methods to routinely manipulate these clusters of genes and to refactor them to be able to quickly and reliably identify express them in suitable fungal host species and then to identify the resulting metabolites. The compounds produced will be screened for antibiotic properties and methods will be deployed to scale up production of the metabolites for ease of development. The successful candidate will be aligned with the BBSRC SWBio Doctoral Training Programme at Bristol which will provide additional training opportunities and local student cohort activities. In this PhD you will gain skills in a wide range of molecular biology methods and how these can be deployed to take a synthetic biology approach to drug discovery.

Deadline: 31st January 2018
Apply here: http://www.bristol.ac.uk/study/postgraduate/

As part of your application, you need to choose: Faculty of Science under the ‘Faculty’ section, and a Biological Sciences 4-year PhD Programme under the ‘programme choice’ section. Additionally, under the ‘Research Details’ section, please indicate that you are applying for a Medical Research Foundation National PhD Training Programme in AMR Research funded project and give the project title and names of the supervisors.